

# Amateur Radio

April 1997  
Volume 65 No 4



*Journal of the Wireless Institute of Australia*



*Full of the latest amateur radio news, information and technical articles including...*

- The Heard Island Experience - VK2PS with VK2DJM
- Future of the Amateur Service - A Discussion Paper
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# Amateur Radio



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The Heard Island DXpedition VK0IR accommodation huts with the flagpole and beacon in the foreground, and the majestic beauty of "Big Ben" thrusting above the clouds in the background (see Stephen Pail's article on page 7).

### BACK ISSUES

Available, only until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

### PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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## Editor's Comment

### Supply and Demand

Many of you will have seen over the last few months that Jim VK3CX had become a Silent Key, that he was my brother-in-law, and that I had advertised some of his equipment in the March *Hamads*. Surprisingly (to most of you), this was the first time I had ever sent in a Hamad! The reason for this is that for most of my near 50 years on the air, I have been using exclusively home-brew equipment and, by the time I had declared it obsolete, no one else would have wanted it anyway!

But with Jim's mostly commercial collection of ham gear, it was a different story. I was most impressed by the response to the Hamad. Even before my own copy of *Amateur Radio* had arrived in the mailbox, the first phone call had come in. A country member was interested in the FL-2100B linear amplifier.

Over the next two days there were three more enquiries for the 2100B and/or spare 572B tubes for it! First come, first served, seemed the only way to go, so apologies to those who missed out.

Fortunately, most inquirers differed from each other as to what item(s) they wanted, so about seven others were, or will be, satisfied. Of course there may still be more enquiries to come, but I would think the initial rush is over.

So I have now learned first-hand how effective a Hamad can be. And they are free (to members of the WIA, provided the ad is no more than eight lines).

The other point which impressed me was how popular an item is the 2100B. This is no doubt because it is the cheapest commercial unit capable of producing our maximum legal output of 400 W PEP. Of course it uses obsolescent valve technology, but a solid-state equivalent would cost far more. It is interesting to note that supplies of the valves used in the 2100B are still available (although with difficulty and at substantial prices). The effects of demand on supply are unavoidable it seems!

Bill Rice VK3ABP  
Editor

### CONTRIBUTIONS TO AMATEUR RADIO

*Amateur Radio* is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, "How to Write for *Amateur Radio*", is available from vk3br Communications Pty Ltd on receipt of a stamped, self addressed envelope.

## ■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

# Special Call Signs Available for ITU Day

The Spectrum Management Agency has granted the use of AX\*ITU for stations operating to celebrate the ITU's annual World Telecommunication Day, which is on 17 May. This year, it's a Saturday. Operation is to be sponsored by Divisions who wish to do so, over the period 0001 to 2359 hours local time.

Permission for operation of AX\*ITU stations this year came from the SMA following a request to them from the NSW Division Special Projects Officer, Stephen Pall VK2PS, for use of the call sign AX2ITU and was granted as a consequence of a submission from the WIA-SMA Liaison Team sent to the SMA last December.

There has been a long-standing tradition in Australia of celebrating the annual World Telecommunication Day by operating stations using an AX\*ITU call sign. Under previous communications administrations, use of the call signs was permitted without the need for special application by each Division. However, this rule changed in 1995, resulting in some confusion surrounding permission for its use in 1996.

The WIA-SMA Liaison Team's submission to the SMA last December, which concentrated on the general principles for use of the AX and VI prefixes and special call signs involving these prefixes, put the WIA's views on:

- events justifying general use of the AX or VI prefixes by all Australian amateurs,
- events justifying the use of the AX or VI prefixes by specific, nominated stations,
- events justifying the use of specific AXnaaa or VInaaa call signs (n = geographic numerator, a = any alpha character), and
- events justifying the use of the AX or VI prefix in conjunction with a

numerator and/or suffix outside the call sign templates.

The submission advanced the WIA's view that there are a number of well-recognised events or occasions for which there exists a demand for the use of special-event call signs, noting that some of these are cyclic in nature (Australia Day and national centenaries, for example), while others are one-off events (the Sydney Olympics, for example).

As a result of the December submission, the use of AX on Australia Day this year was granted for all Australian amateurs. The submission also specifically noted that State Divisions of the WIA have, in the past, applied to use AX\*ITU to mark the annual celebration of World Telecommunication Day. Stephen Pall's letter, sent in February, triggered the granting of this year's use of AX\*ITU call signs in those states wishing to activate a station.

In its submission, the WIA asked that it be permitted to determine the allocation of special-event call signs under a Memorandum of Agreement with the SMA, as follows:

- (i) use of the AX and VI prefixes in lieu of the standard VK prefix, with the WIA providing the SMA with advance notice of events and AX/VI prefix usage,
- (ii) coordinating and recommending applications for specific AXnaaa and VInaaa call signs to be licensed by the SMA, and
- (iii) coordinating and recommending applications for AX- and VI-prefix call signs to be licensed by the SMA where the numerator and/or suffix are outside the call sign templates.

*"This proposed system would work in a similar manner to the existing system of WIA coordination of beacon and repeater licence applications, except that it would be done on a nationwide basis, through WIA Federal," the submission proposed. "This system would greatly simplify the administration of special event call signs and reduce the involvement of SMA staff."*

The WIA hopes to be able to get a resolution on this issue at the earliest opportunity. In the meantime, support your Division's operation of AX\*ITU.

## WIA Seeks Support for Licensing Submission from Parliamentarians

Following a decision at the Extraordinary Federal Convention of the WIA held over 15-16 February, the Institute began a program of sending copies of the submission on Amateur licensing to selected parliamentarians.

The member for Braddon, in Tasmania, Chris Miles, requested a copy of the completed submission following discussions of the draft with a Tasmanian Division Councillor.

Members of both the House of Representatives and the Senate have been chosen to receive copies. A covering letter explaining amateur radio and outlining the purpose and the major points of the submission has been sent with each copy.

The WIA Federal Council has passed a motion *"that the principles espoused in the submission to the Minister on licensing be adopted by the Federal Council"*. In later discussions, the Federal Council also expressed the view that this is not the time for parliamentarians to receive a barrage of letters and phone calls from radio amateurs, similar to what happened in 1995 following the proposed hike in fees then.

# Executive Summary

The WIA Federal Council, at the convention of 15-16 February, directed that the Executive Summary of the completed licensing submission be published in *Amateur Radio*, rather than the full document. For members wanting to read the complete submission, each Division has a master copy and will be able to supply a photocopy on request. The WIA plans to have the licensing submission available on the Internet in due course.

## Executive Summary

The Wireless Institute of Australia, the peak body representing the interests of Australian radio amateurs, seeks amendments to the Radiocommunications Act to provide a more appropriate licensing system for the Amateur Radio Service in Australia.

The submission seeks government recognition of the value of the Amateur Radio Service to the community. It argues a case that the present licensing systems are unsuited to the purpose, role and activities of the Amateur Radio Service in fundamental ways, although radio amateurs are presently licensed under the Apparatus Licence system.

The International Telecommunications Union defines the **Amateur Service** as: *"A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest."*

The submission sets out that Australian radio amateurs require:

- individual licences,
- certainty of licence tenure,
- where fees are applicable, an equitable fees framework,
- certain and continuing access to frequency bands throughout the radiofrequency spectrum, and
- continuing participation in spectrum management processes at local, national and international levels.

Radio amateurs operate radiocommunications stations comprising equipment which may:

- be designed and constructed by themselves;
- be assembled from units of commercially manufactured equipment originally designed for civilian, government or military applications, and adapted or modified for amateur radio pursuits;
- be assembled from commercially manufactured equipment designed for the world amateur radio market; or
- comprise a variety of combinations and permutations of the above.

They operate their stations on frequency bands, allocated under the *Australian Radiofrequency Spectrum Plan*, ranging from the medium frequencies (MF) through to the microwave extra high frequencies (EHF).

Amateurs operate within the specified limits of these bands and are only constrained in technical operation by the applicable licence conditions covering specified bands, transmission modes, bandwidths and powers, etc.

Radio amateurs have total flexibility to change their equipment, transmission modes, location and antennas, provided they comply with the core technical conditions of their licence, and any coordination requirements. This flexibility is essential to maintaining technical experimentation as one of the core activities and attractions of amateur radio. Among all the defined radiocommunications services, amateur radio operation is *unique*.

Radio amateurs have always been licensed as technically qualified

individuals and, by the very nature of their activities, require individual licences.

In relation to the purpose, role and activities of radio amateurs, the current three licensing systems have conflicting limitations, restrictions and administrative constraints.

(a) The **Apparatus Licence** system, being intended for business operations of the private and public sectors, focuses on equipment and its application. This licence system has clearly been distorted to accommodate the Amateur Service.

(b) The **Class Licence** system with its focus on type-approved equipment which has to meet prescribed specifications, and the fact that these licences are not issued to individuals, would have to be fundamentally redefined to accommodate the requirements, activities and practices of the Amateur Service. To do so would only distort this licence system to accommodate the Amateur Service, creating an unsatisfactory situation as has occurred under the Apparatus Licence system.

(c) The main goal of the **Spectrum Licence** system, to allow commercial market mechanisms to play a role in allocating spectrum between users, is in direct conflict with the requirements, activities and practices of the Amateur Service.

The fees framework of the Apparatus Licence system embodies the concept of "spectrum denial" and employs a Spectrum Access Tax formula that values scarcity and demand, and acts as "a rationing device." These are all precepts which are of a commercial, economic nature and not applicable to the Amateur Service which is a voluntary, non-pecuniary service.

Because radio amateurs operate in defined frequency bands, shared with other radio amateurs (and in some instances, other services), and have the flexibility to, at will, use transmissions of differing bandwidth, transmit on different frequencies within their assigned bands, and to change their location, it is a practical impossibility to apply the Apparatus Licensing system's Spectrum Access Tax formula to amateur operations.

The Amateur Radio Service in

**Help stamp out  
stolen equipment  
- keep a record  
of all your  
equipment serial  
numbers in a  
safe place.**

Australia would be better served by a licence fee regime that was truly transparent, equitable for all licensees and reflected the value to the community of the Amateur Service.

**The WIA proposes the creation of a fourth licence type under the Radiocommunications Act, to be called the Amateur Radio Licence.**

This would provide:

- a once-only issue of a licence for life to a person meeting the requirements of an Amateur Operator's Certificate of Proficiency; or, alternatively,
- a five-year licence duration, with renewal, to a person meeting the same requirements.

The proposed licence meets the definition of the Amateur Service which requires that radio amateurs be licensed as individuals, and that radio amateurs' pursuits are of a non-pecuniary nature involving self-training, intercommunication and technical investigations.

Additionally, the proposed licence would recognise and provide for the complete flexibility amateur radio operators have in pursuing their activities, within the framework of the allocated amateur frequency bands and applicable licence conditions determined under the Radiocommunications Act. The present seven licence sub-types would be retained.

Amending the Radiocommunications Act to create this proposed licence would also serve to recognise the value of the Amateur Service to the community, and the value it returns to the nation. The submission demonstrates how the Amateur Service:

- creates within the community a pool of technically knowledgeable people trained in communications operations,
- motivates young people to take up scientific or technological careers,
- contributes to the advancement of scientific knowledge,
- contributes to the development of technology and the communications infrastructure,
- enhances international understanding and goodwill, and
- provides communications support during emergencies and for community activities.

The cost of public administration of the Amateur Service in Australia has previously been reduced through devolvement of the amateur licence examination system to the WIA. The principle of devolvement of administrative routines could also be applied to the issuing of, for example, Certificates of Proficiency and call signs, reducing individual amateur radio operators' engagement with the SMA, thus achieving further savings in administrative burden and cost. The WIA proposes options for such devolvement.

It would be open to the Government to waive fees for the proposed **Amateur Radio Licence**, as it has done with other voluntary-based community services which use radiocommunications (eg Surf Life Saving), and as the American Government has done in recognition of the value to the community of the Amateur Service.

However, it is recognised that there is some necessary "engagement" between the amateur radio community and the SMA, in terms of the SMA meeting its obligations under the ITU Radio Regulations treaties and the Radiocommunications Act.

In the event a licence fee is retained, the WIA proposes that it be made up of two components: a *Spectrum Management* component, and an *Administrative Charge*, akin to the two like-named components of the Apparatus Licence fee.

This fee framework does not include a *Spectrum Access Tax* component, for all sub-types of Amateur licence, in recognition of the value of amateur radio to the community, and the value amateur radio operators and their activities return to the community.

The net cost in loss of revenue would amount to less than \$200,000 annually in 1997 terms.

The *Spectrum Management* charge is proposed to be retained at the present level of \$3 as it is clear that the SMA has determined that this satisfies their administrative requirements in respect to the Amateur Service.

The *Administrative Charge* would be reduced by reducing amateur radio operators' engagement with the SMA, as proposed, through devolvement of certain administrative routines.



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# World Telecommunication Day, 17 May

On 17 May each year, the International Telecommunications Union (ITU) commemorates its founding in Paris 132 years ago. This year, the theme of the event is Telecommunications and Humanitarian Affairs.

The ITU said this year, the event "will focus on the vital and growing link between telecommunications and the emergency relief operations which follow natural and man-made disasters, such as cyclones, earthquakes, or wars."

"The many different aid agencies working around the world have long relied heavily on telecommunications, both to keep in contact with disaster-struck areas, and to coordinate their own activities. Radiocommunications, in

particular, is a mainstay of many emergency relief operations, because of its high level of reliability, the portability of equipment and its high disaster-survival capability.

"Today, as well as tried and tested communications systems such as radio, developments in technology have yielded other alternatives which can benefit disaster victims and field workers alike in coping with the aftermath of a catastrophe."

The ITU said among these new technologies were mobile telephony and

satellite communications using low and medium Earth-orbit (LEO and MEO) satellites.

"In order to enable the benefits of these new technologies to be available as widely as possible, the ITU is working with other international organisations, notably the United Nations Department of Humanitarian Affairs, to create a new Convention covering the international use of emergency telecommunications. This Convention, which has already been accepted by the ITU Council, is now expected to be adopted at an international conference later this year," the ITU said.

In welcoming the theme of this year's event, the ITU's Secretary-General, Dr Pekka Tarjanne, said it was very important both in recognising the achievements of the past, and in looking towards those of the future.

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## Wilkinson Award for Two Victorian Amateurs

The WIA Federal Council has awarded the 1997 Wilkinson Award to Neil Trainor VK3UJ and Bill Magnusson VK3JT for their contribution to WIA education and examination activities.

The award was decided at the WIA Federal Extraordinary Convention held over 15-16 February. Congratulations to Neil VK3UJ and Bill VK3JT.

The Award is for special achievement in any facet of amateur radio. It is named in memory of Ron Wilkinson VK3AKC who, through dedicated determination, set a number of VHF/UHF records over the post-WW2 decades, including work on 1296 MHz moonbounce.

## First Winner for Recruitment Prize

The first of the Fluke 12B digital multimeter prizes for new members, who joined in the month of January this year, went to M F Ramsay VK2VZQ, of Bellambi NSW, who joined the NSW Division.

Mr Ramsay was chosen from a field of nine possible candidates, drawn by WIA Federal Secretary, Peter Naish VK2BPN, at the WIA Federal Extraordinary Convention held over 15-16 February. Mr Ramsay was the only NSW candidate, there being six from Queensland and two from Western Australia in the draw.

Each month throughout 1997, a Fluke 12B digital multimeter will be given away to a lucky winner who joined a WIA Division in the previous month. The Fluke multimeter prizes have been generously donated by Philips Test and Measurement. See the recruitment advertisement in this issue for more details.



## ■ DXpedition

# The Heard Island Experience

Stephen Pall VK2PS\* talks to David VK2DJM about his part in the historic Heard Island DXpedition.



David VK2DJM with family teddy bears.

David and I are looking at hundreds of photographs. Snow capped peaks, pebble beaches, black volcanic sand, glaciers, birds, accommodation shelters, elephant seals, penguins, bearded radio amateurs, antennas and radios.

One of the pictures shows a bearded radio amateur and three teddy bears sitting on an operating table next to an FT-1000. The teddy bears belong to the amateur's children, Alexis (5) and Renee (2).

Their father promised to take the teddy bears on a long long journey and bring them back when he returned. These teddy bears have special names. The biggest teddy is named Campbell, honouring the first Australian radio amateur who activated Heard Island in 1947, Allan Campbell-Drury. The second teddy's name is Adcle, named after the millions of penguins inhabiting the Antarctic. The third bear is Bee-Bee,

named after Big Ben, the island's 2745 m high, active snow-capped volcano.

"What made you go to the island and how did you find out about the expedition?" was my opening question to David.

"I heard some news about a 1995 failed attempt to go there. Later, magazine articles and amateur radio news-broadcasts triggered my memory. The Internet web site gave me quite a lot of information about the proposed expedition. It seemed to me to be an exciting task to go to an unusual Australian Territory," replied David VK2DJM, the only Australian amateur who was part of the twenty man expedition. Carlos NP4IW, the twenty first member had to withdraw at the last moment.

"How did you manage to get there. It is so far away and it is quite a costly undertaking?" comes the next question.

"I raised my finances myself, which were substantial. The participation fee was \$US10,000, plus return fares to Reunion, plus incidental expenses, arctic clothing, cameras and films, etc."

"You had no sponsors at all?"

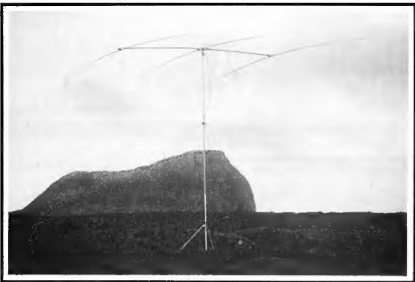
"No, I had sponsors, but not many. About four VK/ZL individuals donated money, the VK2 WIA Division contributed \$150, and about seven amateur radio clubs supported me with some funds. A few commercial firms also assisted the group. Colgate-Palmolive donated personal hygiene articles for the whole team. Australian Geographic Magazine promised to buy some of my photos. Sphere Communications Pty Ltd of Kingsford NSW provided the team with a complete weather station, designed and manufactured in Australia, which proved to be very useful during our stay on the island. This weather station electronically records the speed of wind, the direction of wind, indoor-outdoor temperature, windchill effect, rainfall and barometric pressure. The device is called Ultimater 2000.

"I also tried to raise money by starting my philatelic envelope project. Other members of the expedition had similar ideas, so it became a common money raising project for the whole DXpedition."

"I understand each amateur, besides being a duty operator, had a special task allocated to him. What was yours?"

"My task was disaster management. I was responsible for the physical safety of antennas, equipment and personnel. In the case of an accident it was my role to have an emergency disaster plan put into operation," says David.

David is well qualified for that particular job. He is actively involved in the State (NSW) Emergency Service. He was directly involved in the 1986 major floods and storms in the Sydney region, in the Newcastle earthquake emergency, in the violent windstorms in the Kuringgai area, and in the ravaging bushfires in Sydney in 1994. His six years of army reserve training, connected with operational and strategic communication systems, gave him a good background to his amateur activities. Now that he has been injected with the "DX virus" his next plan is to upgrade his Morse skills to



One of the mono-band antennas with "Rogers Head" in the background.

obtain a full licence. David is currently employed by GEC Electronics as operations and quality assurance manager. He is married to Kathy and his two daughters adore him.

*"How was the journey on the ship?"*  
That was my next question.

David is looking around on his cluttered desk. He picks up the photo of the ship and shows it to me. "The French polar ship, the "Marion Dufresne" is a very up-to-date and modern ship, specially designed and manufactured for Antarctic work. It took me 22 hours to fly from Sydney, via Melbourne and Mauritius, to Reunion and six and a half days by ship to arrive at Heard Island.

"We had other passengers on board too. Some relieving French teams for other sub-Antarctic French bases. Professor Harold Heathwell, a scientist specialising in micro-organisms, who took part in one of the 1983 DXpeditions, was there as a passenger. He gave valuable background briefing about what we could expect on the island.

"There were daily training seminars for the DXpeditioners. In addition to the seminars, all the equipment was unpacked, checked, and repacked into manageable sizes for helicopter transport at the landings. The weather was excellent going to the island, but very stormy coming back. Many of the DXpeditioners were seasick. I had the

good fortune not to be affected by the movements of the ship," says David with a smile.

*"And the landing?"*

"The excitement of the DXpeditioners was very high but finally we arrived at the island of our dreams which was to be our home for the next 20 days. We were stunned by the harshness and the beauty of the island, with the sight of the glaciers, with the snow capped peak of Big Ben, with the black volcanic sand and with the view of the ramshackle ruins of the former ANARE station.

"It took 52 flights for the specialist French "Lama" helicopter to land all of us, plus the 34 tons of equipment, in Atlas Cove. The helicopter's capacity is one pilot and four passengers, or one pilot and 800 kg of freight. The French were very helpful and cooperative all the time. It took us a total of 58 hours to construct our camp and be fully operational. The ship was anchored offshore at a distance of about three kilometres, and did not sail until it was considered that the expedition was safe and consolidated on the island."

*"Did you operate much?"*

David's eyebrows turn into a question mark. "Quite a bit, actually," comes the soft reply. "All the expeditioners were scheduled into a minimum of three-hourly operational shifts at least twice in 24 hours. This meant at least six hours or more before a microphone, or with the

key for the CW operators. The rest of the time was spent with other allocated jobs, like kitchen duty.

"Being responsible for the physical safety of the "village", every day I inspected every shelter, every mast or other equipment, every anchorage point and the guying ropes of every mast. We had winds sometimes up to 130 km/h so it was vital that our equipment was in good shape. Sometimes we had sunshine, but we had snow, hail, sleet and small hail pellets which flew horizontally against anything with incredible speed.

"The weather pattern was very changeable, even for very short distances. One could leave the shelters in calm weather to walk the distance of 700 metres to the operational tent, only to arrive in a rainstorm. We had three radio tents, one for CW, one for SSB, and the third one for RTTY and the centralised computer equipment. The distance between the CW and SSB tents was such, that it enabled simultaneous operation by both modes on the same band.

"Sitting on the receiving end of a pile-up was an awesome experience for me. It required steel nerves and absolute concentration. The band, not counting the pile-up, was remarkably quiet. No QRM, and no QRN, except for some very violent atmospheric crashes on 160 and sometimes on 80 metres. It was also nice to hear the excited voices and the many thank you comments when contact was made with other parts of the world."

I then asked David the controversial question which is still a sore point with some VK and ZL amateurs. *"In what way did the use of modern technology influence the outcome of the expedition?"*

"An elaborate computer network was used for logging the contacts. This simplified and centralised the logs for easy transfer to other systems, which enabled the individual with Internet access to check whether he was in the log. Messages to and from the island were relayed via PACSAT to the pilot centre in Belgium, from where they were distributed on the packet and Internet systems.

"Interestingly, one of the pin diodes of the PACSAT equipment developed a

fault and became hot and unstable. The "box", when not in use, was wrapped in a plastic bag and placed outside the tent in the cold. Within a short time it recovered completely. The information on the Internet was used by many non-amateurs, schools, students and individuals. It created an enormous interest."

Our formal interview with David was interrupted at this stage by mutual consent. A lengthy discussion and exchange of views followed, including discussing the poor participation rate of the VK/ZL amateurs. A total of only 713 QSOs out of nearly 25,000 amateurs in both countries; or, on average, one contact for every 35 amateurs. There were many multiple contacts on different bands and modes so the 713 figure might go down as low as 600 individual amateurs.

Not entirely agreeing with each other, we came up with the following hypothetical answers:

a. The VK/ZL amateur fraternity was not prepared for the intensive non-amateur technological backup which heavily influenced the 24 hour activity-planning by the Heard Island personnel.

b. With reference to the role played by the packet and Internet systems, the packet system is amateur operated, is free and, in Australia, quite slow and sometimes plagued by hiccups. Quite often it took up to seven days for the DX news to reach the individual packet user. In contrast, the Internet is virtually instant, but is accessed only by very few users among Australian amateurs. Some limited access is available to the Internet via employers (do they know about it?) and educational institutions, but most of the amateurs with this access are not DXers, or even users of the HF bands, so the opportunity of news dissemination was not explored nor used.

c. To our knowledge there is no active packet and/or other type of DX Cluster anywhere in Australia (if there is, let's hear from them!).

d. The decision as to what bands and modes would be used the next day, and to what direction or into which countries, was made 24 hours beforehand on Heard Island, and was immediately advised to the Belgian Pilot Centre. The decision was made by Peter ON6TT and was



**The VK0IR team. (l to r - standing) Bob N6EK, Hans HB9BHW, Arno OE9ANJ, Bob K4VEE, Ralph K0IR, Bob KK6EK, Peter ON6TT, Al W3VN, Mike N6MZ, Wes W8FMQ, Michael EA8AFJ, James 9V1YC and Willy HB9AHL. (l to r - sitting) Harry RA3AUU, Kurt HB9AFI, David VK2JDM, Ghs ON5NT, Arie PA3DUU, Glenn W0GJ and Mike K0AJ.**

based on personal experiences, on beacon observation reports, and analysis of the previous days logs. It was also based on some computer propagation modelling and, in large part, on the feedback coming from the pilot stations. There was one pilot in Japan, one in Europe and five in the United States. One of the US pilots also had the duty to act as a monitor for the Pacific region. These pilots were accessible via the Internet and packet, but the Internet was the preferred mode. There was no pilot station in the VK/ZL area. Why? Because, according to David, nobody volunteered to become a pilot despite David's urging and calls for the support of a VK/ZL pilot. Nobody came forward. Did the "I'm all right, Jack" syndrome raise its ugly head among our DXers, or did we really not have the access capability to the Internet? Did any feedback come back via the pilots from Australia to Heard Island? We do not know. Not yet! I am now trying to find out the answer to this question from appropriate sources, so please be patient. It is possible that there was no feedback or minimal feedback from Australia and the decision-makers assumed that there was no propagation and that we could not hear them. But we, on this end of the "wet string", did hear them, sometimes quite loud on 80 metres, but the island was working JAs and Europeans.

e. There is a slight possibility that

some of the island operators were carried away with their individual success, and just forgot the big bulk of VKs and ZLs.

f. Propagation favoured more the south-north direction but not so much the west-east direction.

g. Directional antennas were used by the expedition into specific target areas.

h. There were no press, radio or television news reports in the Australian media about the expedition. Only once, in a news item in the *Sydney Morning Herald*, which reported a possible eruption of Big Ben on Heard Island, was mention made (two lines) about amateurs being on the island. Whose fault is this? Or was it a fault? We do not know! Was this amateur activity also ignored by the European, Japanese and North American media? We do not know!

In my personal opinion a golden opportunity has been missed by all of us for not presenting the amateur fraternity as a serious, science-oriented body, which will go to great lengths and expenses to explore new communication methods and propagation patterns by pushing the horizons of communication science to its most distant limits.

After a frustrated one hour discussion, David and I resumed the interview

*"How can you describe the every day life on the island during these three weeks?"*

*"There were five people on radios, five people were sleeping, a number of*

the off-duty operators undertook some hikes around and outside the campsite (as a rule, for safety reasons, three people had to cluster into a hiking group), others attended to every day chores, cooking, housekeeping, cleaning, and there were some constantly attending the satellite equipment.

"We had plenty of food. We had at least one hot meal a day. There was a variety of tinned meat, rice, vegetables, stew, hot soup. Breakfast was self serve and included cereals, milk, bread, plenty of orange juice, chocolate and fruit. During the day we had all sorts of snacks. We carried four tons of food for the three weeks. We had plenty of drinking water in huge plastic tanks. We had a perfectly working prefabricated toilet, with bowl, urinal, hand basin and a mirror on the wall.

"The type of clothing and its use was an individual decision. We slept in sleeping bags on some sort of underlay mattress. We were prepared for any medical emergency. The only casualty was at the beginning of our stay on the island, a dislocated shoulder. We had three highly respected medical specialist doctors among our DXers and they were prepared for any emergency. The weather changed very quickly, from clear sunshine to stormy conditions. We had heavy snow fall for two days, but plenty of sleet and hail on other days.

"Big Ben, the active volcano, was at a distance of nine kilometres and the base of the mountain was three kilometres to the top. The volcano constantly vented steam from one or two fissures on the south-westerly slope of the mountain. We had two and a half sunny days when the mountain was totally visible in its majestic beauty. It was an unforgettable sight!

"Despite the bad weather we never lost an antenna mast, except the 80 metre vertical which broke due to wind pressure on the very first attempt. We had some bent antennas and we lost some aluminum elements. Wildlife was in abundance."

David stops his story and reaches into the pile of photos. Elephant seals, huge colonies of penguins, seals, skua birds, albatrosses, a handle of an old spade almost totally covered by moss, are shown in the photo prints.



**Fig 1. The plaque fixed permanently near the old ANARE huts as a memento of the January 1997 VKØIR activity.**

"Well, to say it in one sentence. Life on the island was very busy, but totally lacked any real normality compared to our usual daily life." A long pause. David is in deep thought as he remembers the past weeks.

"We left nothing behind," starts David again. "We reduced the whole camp into bits and pieces within hours and took it back to the ship by helicopter. Only two mementos were left behind. One was a VKØIR coffee mug, left in one of the ANARE emergency huts, which are still in reasonable condition. The other was a small plaque bolted into a rock face (see Fig 1).

"The indentations, made by our shelters and our boots on the sand and on the land, disappeared within hours; wind and sand movement took care of that. Heard Island returned to its tranquillity as the very distant outpost of our land. The Heard island DXpedition was moving out."

*"Everything must come to an end. How was the journey back from the island?"*

David looks at me, with a glimmer in his eye. "Everybody was very happy to be going home. It was great to see the ship emerging from the mist on the horizon. It was a fantastic feeling to see the helicopter flying towards us. The first hot shower on the ship was fantastic; some of us went back to have a hot shower for the second time. For the next few days everybody was fast asleep. Only a few attended meal times. It was total relaxation.

"Little did we know what was ahead of us. Before reaching Kerguelen, we had very heavy weather. Twenty metre swells, 60 to 70 knot winds, and a DXpedition of sea-sick radio amateurs. Fortunately, I was not affected. I was on the bridge admiring and experiencing nature at its wildest. Waves many stories high swamped the bow of the ship and the upper deck. In the dining room everything was topsy-turvy, chairs became mobile, cups, glasses and bottles were sliding on tables.

"We had a short stopover on Kerguelen. Some ship's personnel disembarked, others boarded, but there was no radio activity as such. Although there was an exception. Ten individual contacts were made with a South African amateur, who will wonder for a long time why he had 10 contacts with 10 different operators with the same callsign from Kerguelen island. The expeditioners used one of the official transmitters on the island for these short QSOs," said David, concluding the interview.

Within 24 hours of arrival back on Reunion, there were no more DXpeditioners left there. All returned to their countries in the knowledge that they have done a magnificent job and that the name of Heard Island will now appear at the bottom of the list of the "most wanted" countries in the DXCC world.

*\*PO Box 93, Darul NSW 2158*

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## ■ Administration

# WIA Federal Discussion Paper

## Response to the IARU Future of the Amateur Service Committee

Prepared by Grant Willis VK5ZWI and David Wardlaw VK3ADW

### 1.0 Introduction

At the International Telecommunications Union (ITU) World Radio Conference to be held in 1999, the international regulations governing and defining the nature of the Amateur Radio and Amateur Satellite services are due to be reviewed. In response to this, the International Amateur Radio Union (IARU) set up the Future of the Amateur Service Committee (FASC) to look at the regulations with the aim of proposing changes that are representative of what the global Amateur Service wants today.

A major forum for the WIA to have an input to the IARU work on this issue arises in September this year at the IARU Region 3 conference in Beijing. A sub-committee within the WIA Federal body has been looking at the FASC papers and has prepared the following discussion paper for members to consider. Member feedback can be sent to the WIA IARU Liaison officer, David Wardlaw VK3ADW, PO Box 2175, Caulfield Junction, VIC 3161, and should reach David no later than 30 April. This will allow the WIA time to prepare a final paper for presentation in Beijing.

### 2.0 WIA Position on FASC Papers - Reviewing the Amateur Regulations

The WIA sub-committee considered each of the ITU regulations and how they impact on Amateur Radio today and in the future

#### 2.1 The ITU definition of the Amateur Service

*SI.56 Amateur Service: A radio-communication service for the purpose of self training, intercommunication and*

*technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.*

Generally, the WIA sub-committee felt that the definition of the Amateur Service was quite appropriate. Discussions with Federal Council raised the possibility of changing the words "self training" to "continuous self training", to recognise that amateur operators are learning all the time, especially considering that the amateur service does have an experimental nature both in hardware and in operating techniques. What do members think? Is this something that should be pursued?

#### 2.2 The Banned Countries List

*\$25.1 (1) Radiocommunications between amateur stations of different countries shall be forbidden if the administration of one of the countries concerned has notified that it objects to such radiocommunications.*

The WIA sub-committee proposed that this clause should be modified or even deleted. This regulation has negative impacts on the amateur service's ability to handle natural disaster traffic in the case where communications are required to or via a banned country. The notification requirements were also a concern, as the process to notify the amateur service may not work effectively in all countries. This could result in international stations contacting a banned country unknowingly, thus breaking the law in both countries as a result of the ITU treaty, a situation which does not seem fair where the notification process breaks down.

The WIA sub-committee considered the following:

1. This regulation could be dropped from the ITU regulations, leaving it to the individual administrations to prohibit their own citizens from communicating with other countries.

2. Modify the wording along the lines of "countries have the right to limit international communications except as needed for disaster communications", a statement which is already supported by the ITU through resolution 640 which indicates support for the amateur service performing disaster communications duties. This supports the role of the amateur service in disasters, while not addressing the notification issue.

Which approach would members prefer the WIA take?

#### 2.3 Plain Language Communications

*\$25.2 (2) (1) When transmissions between amateur stations of different countries are permitted, they shall be made in plain language and shall be limited to messages of a technical nature relating to tests and to remarks of a personal character for which, by reason of their unimportance, recourse to the public telecommunications service is not justified*

It was considered that the natural meaning of the words "plain language" doesn't cover any form of communications other than by voice, CW or other internationally recognised code. The modern interpretation of this has been to prevent Amateur Operators from using encryption, which is important in the detection of pirate stations operating in the amateur bands and policing the content of amateur transmissions, from an administration's point of view.

Use of the words "not obscuring meaning" was considered as a way of covering the encryption argument but this appeared to have other implications. For example, if someone chose to say "in plain language" the statement "Station 1 Code 4" then the meaning could well be obscured.

The final suggestion was that the regulation could be re-worded as "an Amateur Station is not permitted to transmit a signal that cannot be decoded

and understood by a third party". An exception that should be considered would be the use of "telecommand" applications for the Amateur Satellite Service, which by their nature require encryption to ensure spacecraft integrity during command activities, a point which was raised by AMSAT.

Member feedback on the WIA's recommendation is sought

## 2.4 Third Party Traffic in the Amateur Service

*S25.3 (2) It is absolutely forbidden for amateur stations to be used for transmitting international communications on behalf of third parties.*

*S25.4 (3) The proceeding provisions may be modified by special arrangements between the administrations of the countries concerned.*

The third party international regulations have been twisted the most over the last few years, in particular with the advent of the global amateur packet radio network. The natural meaning of "third party" means that the passing of traffic from one amateur to another via a third amateur should be banned with the exception outlined in S25.4. This is quite clearly unacceptable in today's amateur radio service.

Dealing with the problem is complicated as it covers so many aspects of the hobby. For example:

(1) Amateurs passing traffic from Amateurs to Amateurs via Amateurs (eg Packet Radio);

(2) Amateurs allowing non-amateurs to speak over their stations (eg JOTA);

(3) Amateurs passing messages on behalf of non-amateurs (eg the USA Traffic Nets); and

(4) Amateurs passing National and International disaster communications (eg WICEN)

One proposal was that the third party regulations should be dropped and that regulation of third party traffic be undertaken at a national level rather than an international one. This raises further concerns:

(1) Not having the international regulation may hinder the ability to control undesirable types of traffic on amateur radio (although the traffic content restrictions and encryption

aspects elsewhere in the regulations should cover this);

(2) The international authorities may feel that their ability to regulate is being eroded; and

(3) There may be a fear in some countries that removing this regulation may affect the revenue for their local telecommunications carrier

Not all of these issues directly affect amateurs, but will potentially be considerations by administrations when they consider this issue.

A minimum consideration would be to modify the regulation to allow activities such as disaster communications, packet radio, JOTA, NTS and others to continue and develop in the future.

Suggestions from members are welcome.

## 2.5 Morse Code Treaty Requirement

*S25.5 (3) (1) Any person seeking a licence to operate the apparatus of an amateur station shall prove that he is able to send correctly by hand and to receive correctly by ear, texts in Morse code signals. The administrations concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above 30 MHz.*

The Morse code issue is always a contentious one. However, in the context of the international amateur radio regulations, there are some issues to be considered which have not been raised in much of the public debate.

Is the Morse code treaty requirement going to hinder the development of the Amateur Radio Service in developing countries where Morse code testing proficiency may not be available these days? In some countries, this may be a major barrier to increasing the number of Amateur Operators. It should be a goal of every amateur society in the world to increase the number of Amateur Radio Operators globally.

Within the Amateur Radio Service, current Morse code testing is not uniform across the world. The ITU Amateur Regulations do not set down a uniform standard for Morse code testing. This does generate problems for reciprocal licensing and complicates

moves towards an international amateur licence.

Looking to the future, a review of the Amateur Regulations by the ITU may not occur again for 30-40 years (the last one was in the 1950s). It concerned the WIA sub-committee that retaining Morse code as a treaty requirement could hinder the future development of amateur radio. The suggestion was that we should be seeking to achieve some flexibility so that the issue of Morse code testing could be reviewed in perhaps 10-20 years or even less, without having to wait until the issue can again be placed on the ITU World Radio Conference agenda.

Considering the future, and the likely ITU time scales, the WIA sub-committee recommends that Morse code proficiency be dropped as a treaty requirement, but be retained by national administrations. There are potential problems with this approach, one of which is reciprocal licensing.

Another solution considered was to have Morse code, as well as the other technical qualifications required to be an amateur operator, grouped into an ITU-R recommendation which is incorporated by reference into the ITU radio regulations. This approach was first introduced at World Radio Conference '95. An ITU-R recommendation is more readily able to be amended, between WRCs if required, and allows Morse code to be retained currently at the ITU level but be reviewed in a time frame that can be set more easily by the amateur service in the future.

In Australia, it is recognised by the WIA that, presently, a majority of members still wish to retain Morse code testing. The WIA is not currently seeking to remove this requirement in Australia. However, on the international scene, there is merit in the amateur service being able to control the timing of the next review of the Morse code requirement. Either approach achieves the goal of being able to review the Morse code requirement in a time frame to suit the amateur service, rather than one to suit the ITU.

Which proposal would the membership prefer the WIA to follow?

## 2.6 Operator Technical Qualifications

S25.6 (2) Administrations shall take measures as they judge necessary to verify the operational and technical qualifications of any person wishing to operate the apparatus of an amateur station.

The WIA sub-committee considered the need for these qualifications a fundamental aspect of the amateur service, as they define the unique self training and education aspects of amateur radio. The present problem is that individual administrations are left to decide what topics amateur operators should be examined on. The IARU suggestion is that the broad topics that amateur operators need training on could be covered in a document incorporated by reference into the ITU regulations.

Re-arranging the statement requiring amateur operators to be qualified could assist in providing for an international amateur licence. There have been some moves by IARU to look at ways of achieving this, and the WIA sub-committee recommends that any moves to establish an international amateur licence should be encouraged.

## 3.0 Conclusion

The issues presented here are open for input by members. If you have any points you would like to communicate to the IARU Liaison officer and the WIA sub-committee, write to the WIA at PO Box 2175, Caulfield Junction, VIC 3161, or fax us on (03) 9523 8191. E-Mail is also acceptable to [gwillis@dove.net.au](mailto:gwillis@dove.net.au). Please ensure that your responses reach us no later than 30 April 1997.



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Call Sign (if any) . . . . . [AR 1 11/97]

## QSP News

### WRTC-2000

Since the outstanding success of the WRTC-96 (World Radiosport Team Championship) held at Silicon Valley, North California in July 1996, there has been speculation where the next event will be. It would have been appropriate to hold it in Australia during the Olympics, but the facilities (52 compatible stations) are not readily available.

On 13 February the Slovenia Contest Club at Ljubljana, Slovenia, announced that, following approval from the WRTC Committee, they will host WRTC-2000. Tine S50A, Robert S53R, Franc S59AA and Leon S59A are in the process of defining the basic criteria for the selection of competitors and other organisational preparations.

The selection of competitors for the WRTC-96 was by the World Committee and was based upon the results of the world contests over the years prior to 1996. In 1996 Martin VK5GN and David VK2AYD represented Australia.

WRTC-2000 will continue to carry the WRTC into the 21st Century. It will

be a mile-stone event in amateur radio contesting. Let's make sure Australia is again represented.

(News item from David Pilley VK2AYD)

### ICARE '97 Conference

ICARE (International Council for Amateur Radio in Education) will hold its third annual Conference in Durban, South Africa from 9 - 12 July 1997.

I quote from the information received: "ICARE '97 provides a forum for teachers to share amateur radio projects which have been successful in the educational environment. It provides ideas for those who have not yet taken amateur radio into school. It helps set up a framework for links with schools and teachers not only over the airwaves but also via the Internet and the magazine AMRED".

Conference proceedings are published and circulated to Country Co-ordinators. For further information, contact Brenda VK3KT.

(News item from Brenda Edmonds VK3KT)

# ■ QRP Transceivers

## The DB 80, an 80 m SSB/CW QRP Transceiver

*Dr T C Choy VK3CCA\* shows that experimentation and home construction are still alive in amateur radio.*

### Introduction

What do you get when you cross an American Breed with an Australian Diamond? The answer is the Diamond Breed, a new QRP transceiver which I have built based on the earlier works of these authors and hence the name DB 80 (see Refs 1 & 2).

I was in the middle of constructing the Breed CW QRP transceiver when Drew's article appeared and so fate fell upon me to bring the two together. Gary's original article was an excellent account of his experience with the Motorola MC3362 chip, which was originally designed for mobile phones and other narrow band FM receivers. The resultant receiver based around this chip was excellent for its simplicity. The VFO, in particular, was a joy using only one coil and capacitor with excellent stability as compared to the need for a separate diecast-boxed FET based VFO of Drew's.

With an extra LM324 quad op amp and the MC3340 gain control chip,

Gary's receiver provides better audio bandpass filtering with an audio derived AGC system which improves the receiver's overall performance as well as providing the bonus of an S meter readout. However, Gary's transmitter was not easily adaptable for SSB work. I found the use of the LM6321, 2N3866 and MRF475 combination overly expensive. Having read Drew's article I decided to redesign this part, replacing the expensive LM6321 with an MPF102 FET + 2N2222 combination soldered dead-bug style around the pins on the original PC Board. I replaced the 2N3866 with a 2N3053 and the MRF475 with the IRF511 MOSFET. These combinations brought my project within the XYL's permitted recreational budget.

To bring the system to 80 m, I had to redesign the receiver front-end filter and the post-mixer filter on the transmitter. I wrote a Pascal program to do this several years ago when I needed to prove to myself that I can still cut it, ie to program and debug.

For SSB I used the original VK3XU modulator circuit with the exception that the BFO now comes from pin 2, a buffered BFO output from the MC3362 chip unused in Gary's circuit. A little more switching, plus a separate crystal oscillator, brought the development of this system to its completion. The latter was an extravagance as I found off-balancing the NE602 which Drew used in his circuit a little inconvenient. I like to match the sidetone oscillator in the transmitter circuit with my transmitted signal.

I am sure readers will have no difficulty building this transceiver. In fact, nice circuit board lay-outs already exist in the *ARRL Handbook*, although I constructed my modulator board using a piece of veroboard.

### Receiver Board

Figure 1 is the circuit diagram of the re-designed 80 m receiver. The main changes are the front end filter, crystal and audio filter inductor and capacitor values. The main tuning capacitor is an air spaced 140 pF variable capacitor in parallel with a 1100 pF polystyrene. I used the MC3362 varactor diode as fine tuning. Readers might like to wire in a more sophisticated RIT system with relay or diode switching. I found my circuit simple enough to use and leave it to the big boys with their expensive sets to RIT tune into me if I am slightly off frequency.

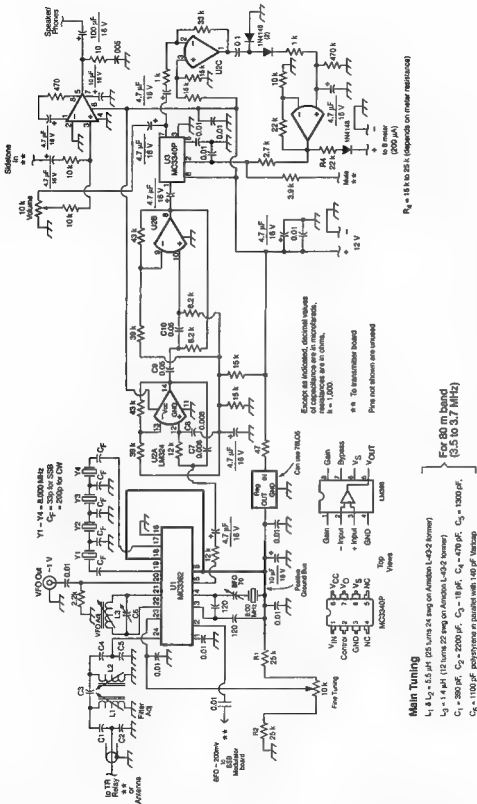
Two extra pin connections were made to the board, one to pin 2 (the BFO output on the MC3362 chip for the transmitter) and another to pin 7 of the LM386 chip to provide extra muting (see later). Construction of this board is straightforward but readers should know of two caveats that caused me some aggravation. The capacitor on pin 1 of U1 should be checked for quality before soldering. My first prototype drew 100 ma of current and overheated the chip on completion due to this faulty capacitor. You can see my frustration in diagnosing this fault.

The ARRL's circuit board in the 1992 edition contained certain errors that required correction. Pin 11 on the LM324 was left ungrounded. Pins 6 & 7 of the MC3340 and LM386 chips were incorrectly wired. These errors led to a 10 dB loss in gain in my prototype board.

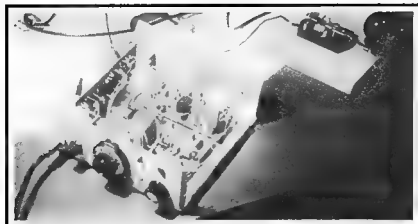


**VK3CCA with second operator Tiger. Immediately to his left on the desk top are the DB 80, Morse key and ATU.**





80 metres SSB/CW QRP Receiver (Schematic)



**The DB 80 with the cover off showing the placement of the three boards. Note the space left for a linear and/or frequency counter.**

The 78L06 chip is now rather hard to get but I found no loss in performance replacing this with a 78L05.

The most expensive part is the slow-motion tuning mechanism for the main tuning capacitor. I could find no cheaper alternative and had to pay \$23 at DSE. A plastic coupler is essential as hand capacity makes tuning impossible. I solved this when I found an old plastic rotary switch which, when dismantled, contained all the parts needed for a coupler. No doubt readers will have other solutions for this mechanical system.

The VFO and front-end filter coil formers were purchased from Stewart Electronics. They are, unfortunately, rather expensive with the set of five coils, including two more for the transmitter board, costing almost \$20. I am sure readers who have old transistor radio coil formers or the DSE R5040 coil set would like to experiment with these alternatives.

The receiver is very sensitive on this band, especially if your comrades on air are mostly not QRP. I had an S9+20 report from a VK2 station one night with a 20 dB attenuator wired in! The -123 dBm MDS quoted by Gary must be very conservative even on 20 m.

## Transmitter Board

I redesigned Gary's transmitter circuit (see Figure 2), removing the crystal oscillator parts to U1 and took a pin out via a capacitor from pin 6. The SSB modulator or CW oscillator signals now come to U1 via this pin.

The LM6321, as mentioned, was

replaced by a FET buffered with a 2N2222 IF amp. The driver is now the 2N3053 driving the IRF511 MOSFET power amp. This was biased as a Class AB amplifier for linear operation. This combination saved me dollars and dollars. The 2N3053 cost \$1.25 from DSE and the IRF511 is about \$3.50 from Tandy. I later bought a whole bunch from SIM LIM's in Singapore for \$1 each! The original MRF475, 2N3866 plus LM6321 combination would have exceeded the budget for the whole project three times over! In particular, the latter video chip could only be purchased from Farnells at \$7 each if ordered in bulk. The keying power transistor TIP110 can be any NPN type capable of switching about 1A.

I have detected no bugs while constructing the transmitter board, which worked like a charm the first time. I do recommend keeping the oscillator components to U1 in initially and then removing them when the Tx board has been debugged and checked. The only minor problem on SSB was with RF feedback. This was more a function of the simple case I used. With a poorly matched antenna the muting circuit on the MC3340 is insufficient to mute the modulated voice coming back from the audio amp. Unless you love to hear yourself speaking, my recommendation is to work into a properly matched antenna with low SWR or to mute the LM386 completely by connecting pin 7 to the mute line. This problem is not so annoying on CW as the sidetone oscillator already makes a lot of noise.

## Modulator Board

This is directly borrowed from Drew's circuit (see Fig 2). The 741 op amp mic gain amplifier is standard. Note that I removed the 560 ohm resistor, although you may have to leave in if you have a low impedance microphone. The only way to adjust the 100 k mic gain resistor is on air. I recommend using a ten turn trimmer pot. I backed off the gain during early on-air tests when there were reports of over-modulation. More precise adjustments can be made if you have a two-tone oscillator and scope.

The NE602 circuit in the first mixer is a lot simpler than Drew's when I removed all the de-balancing and switching circuitry. The BFO from the receiver board goes directly to pin 6. I use a separate FET oscillator with a pair of diode switches for SSB and CW. A Cohn filter set is used in the modulator board which is a duplicate of the one on the receiver.

## Construction Hints

Both the receiver and transmitter boards are wired on the original PC boards from the *ARRL Handbook*. Everyone has his favourite technique of homebrewing PC boards. The one I opt for is John Grebenkemper K16WX's technique [Ref 3] of producing a negative on transparency and then ironing it on and SLOWLY peeling the pattern off. Fortunately, my XYL is too busy pursuing other interests to know what I am up to with her iron.

The order of construction should be the receiver board, the transmitter and then the modulator board. I developed the latter on a veroboard. The metal case of about 20 x 20 cm was also home-made from a piece of aluminium. I left enough space for a 30 W linear later on as I intend taking this rig on my travels. Unfortunately, as you can see from the photograph, I did not leave enough room on the front panel for a digital frequency readout, so those with such an intention should leave some more space for it. One of the unfortunate facts of life is the different ways microphones are wired. You will need to determine that for yourself and keep to the same microphone for this rig. I have four rigs and no two microphones are interchangeable (manufacturers please note)!



The various inductors and chokes were purchased several years ago when Jaycar had them in a mixed pack of 50 for \$5. Unfortunately, they no longer stock them so hamfests are about the only place if you want to cut cost.

The 140 pF variable capacitor is still commonly available through hamfests and I am sure most people will have these.

Not only should the various boards be built in stages, I recommend the transmitter, in particular, be tested from the post-mixer filter onwards, a stage at a time. Eventually, when you have burnt a 1 W resistor dummy load on the output during transmit and checked that the waveform is nice and clean, you can say bravo, QED. Eureka or whatever your nearest dialect equivalent is. The appropriate phasing on the balun transformers at the driver and RF power amp need some care unless you don't mind burning up a few of the RF transistors for self-education! Refer to Drew's original article [Ref 2] for more detailed drawings.

## Alignment

You will need a frequency counter or separate station receiver. The IF is 8 MHz and the VFO tunes from 4.5 to 4.3 MHz, so the transceiver covers the whole 3.5 to 3.7 MHz of the Australian 80 m band. Overseas readers should have no problem broadening the filters for their wider 80 m coverage, eg for the UK, 3.5 to 3.8 MHz. I do not recommend attempting to cover the whole of the US allocation, 3.5 to 4 MHz, with this transceiver as the band is too wide for the filter design here. There is some slight loss in power of about 10% at the lower end of the band, mainly due to a mismatch between my modified LM3261 circuit and the post-mixer filter in Fig 2. The cure would involve complications that are not worthwhile.

Make sure you adjust the BFO trimmer capacitor on the receiver board to the USB of the Cohn filter. This circuit differs from Drew's because of the lower VFO frequency. On-air adjustment is the simplest way. Tune to a QSO on the band and adjust the BFO trimmer capacitor for best clarity. I found a frequency counter and scope useful, although I have for

years lived with merely a home-made diode probe and digital multimeter.

The most tedious part is calibrating the S meter. I have a 200 microamp meter (internal resistance about 600 ohms), bought from Jaycar, and found the 22 k resistor correct for a 50 microvolt S9 input, using a homemade attenuator. Incidentally, if you intend to do this calibration, an oscillator like that on the modulator board with a colour burst crystal on 3.579545 MHz with a 100 dB step attenuator form the appropriate tools.

Having done it once, I guess readers need not repeat the task and simply use the value recommended.

On the Tx board the only major adjustment is the 100 mA bias current for the IRF511. The sidetone level and QSK delay are all a matter of personal taste. On-air the rig is a joy to use in spite of just 4 W QRP and the reports received have been very positive. I have worked VK1, VK2, VK5, VK7s and two reports from VK6 during the first week of operation. This was way beyond my expectations.

As I calibrated the mid-scale mark 50 on the slow motion dial for 3.6 MHz, there were some non-linearities on the scale at the edge of the band. Remember the square root law. In fact, some care has to be exercised at the band edges. I suggest marking these on the scale to prevent out-of-band operation. One way is to re-calibrate the scale but, in the longer term, I plan to squeeze in a frequency counter.

A 30 W linear is definitely needed when propagation conditions are not optimum. I am sure there are plenty of other possible improvements, including a dual band rig with a 9 MHz IF, as well as the possibility of a digital VFO with a phase-locked loop.

This rig is an ideal club project and a good introduction for someone wanting to master SSB principles.

## Acknowledgments

I wish to thank VK1TX for on-air assistance (he was my first interstate QSO when this rig was fired up) as well as VK2IET, VK3OK, VK1PK, VK5KKT, VK7AAQ and, in particular, VK6KVU and VK6MJF for their patience and their signal reports. Although I work at the Department of

Physics at Monash University, I wish to state that no resources of the university, neither parts, manpower nor workshop facilities were ever involved in this project. All parts were purchased at my own cost and construction done on my own time during weekends in my home garage workshop. It is, therefore, a "fair dinkum" homebrew which I strongly encourage any VK amateur to improve or reproduce.

The circuit Fig 1 is a modified version of the ARRL circuit in Ref 1. The circuit of Fig 2 is based on the ARRL circuit of Ref 1 and the Drew Diamond circuit of Ref 2.

## Parts list (Main items)

### Semiconductors

MC3362, LM324, MC3340, LM386, 2 x 78L06, 2 x NE602, CD4001, 2 x MPF102, 2N2222A, 2N3053, IRF511, TIP110, 2N3904, 2N3906, 741, 2 x 6.2 V Zeners and some 1N914 diodes.

### Crystals

10 x 8 MHz computer crystals.

### Inductors

5 x L-43-2 Amidon coil formers plus can and slugs, 2 x T50-2 toroids, 3 x FT50-43 toroids, a six hole ferrite core, assorted RF chokes and 1 DPDT PC board mounting relay.

### Miscellaneous

200 microamp S meter, heatsinks, slow motion drive mechanism, switches, pots, copper wires, etc.

### Sources

Jaycar, Dick Smith, Stewart Electronics and Rod Irving. Some parts are also available from the CW Operators Club through mail order.

### References

Reference 1. *A Portable QRP CW Transceiver* by Gary Breed K9AY in *QST*, Dec 1990 and Jan 1991, also reprinted in the *ARRL Handbook*, 1992 edition and later editions.

Reference 2. *TCF Sideband/CW Transceiver for 80 metres* by Drew Diamond VK3XU in *Amateur Radio Oct 1993*

Reference 3. *Ironing out your own printed-circuit boards* by John Grebenkemper K16WX, *QST*, July 1993

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Internet address: tuck@sci.monash.edu.au

■

## ■ Technical

# Technical Abstracts

Gil Sones VK3AUI\*

## Two Metre Mobile Comparison

A comparative review of two metre mobiles appeared in *QST* for November 1996. The review was conducted by *QST* Senior Assistant Technical Editor, Rick Lindquist KX4V. A panel of reviewers assessed the performance of the radios.

A previous comparative review from November 1995 *QST* was summarised in *Amateur Radio* for April 1996. The comparison of 9600 baud packet-ready radios in *QST* for May 1995 was given in *Amateur Radio* for October 1995 and this is also interesting reading. In this review only two radios were tested for 9600 baud performance. The radios tested for packet were those which had a data jack or connection. Neither had a specification for packet performance.

The Bit Error Rate (BER) information is of interest to anyone contemplating 9600 baud packet. In general, 9600 baud operation is considerably more difficult than the usual 1200 baud VHF/UHF operation. This is reflected in the results obtained in the BER tests.

The results obtained are contained in Table 1. The BER may be unfamiliar to readers. The BER is a measure of the performance of a digital communication circuit. It is simply a measure of the number of bits which are sent through the system incorrectly. A packet contains around 1000 bits so that if the BER is around one per 1000 or  $1 \times 10^{-3}$ , the system will be just about unusable. If the BER is 100 times better at one error per 100,000 bits or  $1 \times 10^{-5}$ , then the system will be much better and you may not notice the losses. The figures are shown in Table 1.

The sensitivity of the receivers is given in dBm and the impedance is 50Ω. This is used in preference to the input voltage in microvolts and is quoted for 12 dB SINAD. This allows a more meaningful comparison once you have

adjusted to the nomenclature. It also gives a better idea of how big a signal you will need to get good packet performance.

The transmit-to-receive turn-around time is of interest for packet operation.

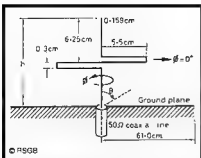
Table 1

Radio	IC2000H Icom	TM261A Kenwood	FT3000M Yaesu	DR150T Alinco	T-klt 1220 Ten-Tec	
Sensitivity dBm for 12 dB SINAD	146 MHz -122.5		-123.0			
Two Tone 3rd Order IMD	440 MHz 146 MHz	69	74	61	61	
Dynamic Range dB	20 kHz Offset 440 MHz		60	49		
	146 MHz 10 MHz Offset 440 MHz	97	91	101	86	90
Adj Channel Rejection dB	440 MHz 20 kHz Offset 440 MHz	69	71	79	61	61
IF Rejection dB		109	96	81 (VHF)	67 (VHF)	76
Image Rejection dB		63	>120	85 (VHF)	94 (VHF)	64
Tx Out Power Watts	144 MHz High Med Low	56 9.8 4.5	51 11 6	68 56 26 11	52 22 10	37 (30 W Kit) (PA) 2
Tx/Rx Turnaround Time m/S Data Mode		170	200	60 50	110 100	55
Rx/Tx Turnaround Time m/S Data Mode		125	83	80 75	165	25
Rx BER 9600 Baud at 12 dB SINAD				1.8x10 <sup>-3</sup>	2.7x10 <sup>-4</sup>	
Rx BER 9600 Baud at 16 dB SINAD				1.1x10 <sup>-4</sup>	<1.0x10 <sup>-5</sup>	
Rx BER 9600 Baud at -50 dBm				2.3x10 <sup>-5</sup>	<1.0x10 <sup>-5</sup>	
Tx BER 9600 Baud at 12 dB SINAD (Rx Sig)				6.6x10 <sup>-3</sup>	6.5x10 <sup>-3</sup>	
Tx BER 9600 Baud at 12 dB SINAD + 30 dB (Rx Sig)				4.7x10 <sup>-4</sup>	1.6x10 <sup>-3</sup>	
Tx Current Amps		10	8.7	10.5	9.3	4.9
Rx Current Amps		<0.5	0.67	0.4	0.5	0.33

However, the prime thing is to be receiving or transmitting intelligible packets which is different to having full audio or RF. The figure given, however, does give an indication.

## Probe Housing

Max VK2ARZ sent details and a sample of a neat probe housing made from a container originally made to contain Blood Glucose Test Strips. The container is the one used by Boehringer Mannheim to package their Blood Glucose testing strips. It is an aluminium tube approximately 9 cm long and 3 cm in diameter and has a plastic lid.



**Fig 1 - Monopole loaded with modified folded dipole.**

Max built a signal injector into one of these, using a circuit from the ARRL Handbook. Max also suggested the use of these tubes to house an RF diode detector probe. The housing is very neat and these containers are fairly readily available. Many diabetics use the strips. There are other similar containers used for other medications. I have seen these containers used as canisters for 120 roll film.

The containers have a desiccant in the lid. This was at one time in a self contained snap-in module, but it is now built into the lid. You should exercise care in removing this and disposing of the desiccant.

The label is attached to these containers with a reasonably tenacious glue. You should peel off as much as you

can, then will need to use a solvent to remove the rest of the label and the remnants of the glue. There are a number of solvents which will work. Eucalyptus oil is effective and is less offensive than some others.

Recently these containers have been made of plastic. The dimensions are the same and this change should not pose too great a problem to amateur reuse.

## Travelling Wave Loaded Monopoles

Travelling wave antennas, or that part of the antenna where a travelling wave exists, have a substantially constant current and voltage along their length. This is often achieved using resistive loading as in a terminated rhombic or a terminated long wire. The result of resistive loading is some dissipation in the resistive element.

Dr Edward E Altshuler has described a series of monopoles where the resistive loading has been replaced with either a modified folded dipole, loop elements, or a pair of folded dipoles. These were described originally in a number of articles in the *IEEE Trans Ant & Prop* July 1961, July 1993, June 1996, and August 1996. The information appeared in a form for radio amateurs in the RSGB monthly magazine *RadCom* in Pat Hawker's *Technical Topics* columns in January 1994, October 1996, and December 1996.

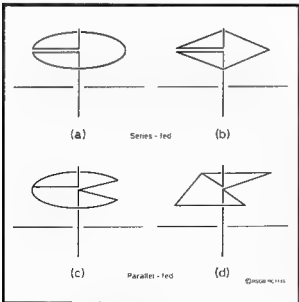
The first monopole antenna loaded with a modified folded dipole is shown in Fig 1. The lower segment of the antenna has a travelling wave current distribution and can be of any length. The antenna dimensions are for 1.2 GHz. There will be a mixture of both horizontal and vertical radiation. If a 240 ohm resistor was used in place of the folded dipole the bandwidth would be greater and there would be no horizontal component. However, the benefit of the horizon-

tal component of the radiation would be lost.

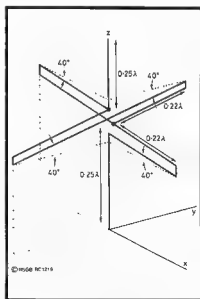
Further work involved the use of loop elements as the loading element. The use of a one wavelength loop provided circular polarisation over a 1.4 to 2.0 GHz bandwidth for a 1.6 GHz design. Both series and parallel fed loops were tried as the loading element. Optimum results were obtained with the loop element about 0.25 wavelength above the ground plane. The loop loaded monopoles are shown in Fig 2. These antennas were intended for use with satellite systems such as Iridium and GPS. Iridium is a system of low earth orbit satellites for a phone system.

The latest design uses two crossed folded dipoles as the loading element. This is shown in Fig 3. It is claimed to provide hemispherical coverage with circular polarisation. The folded elements are tilted up and down by 40 degrees to produce the circularly polarised wave. This is shown by the dotted lines in Fig 3. This design is covered by US Patent No 5,289,198 of 22 February 1994.

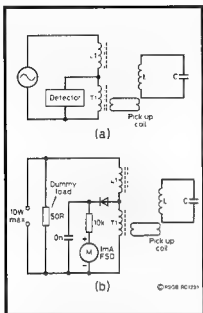
This is an unusual series of antennas which would be very interesting to experiment with. At 1.2 GHz the builders of repeaters in the UK found that the signal received by a mobile became of mixed polarisation due to the many reflections in some areas. Maybe one of



**Fig 2 - Monopoles loaded with circular or square loops, series or parallel fed.**



**Fig 3 - Double folded monopole.**



**Fig 4 (a) - Basic circuit of The Dipper Transformer.**

**(b) - Circuit suitable for use with a transmitter as the RF Source.**

these designs would give good results in this situation.

## The Dipper Transformer

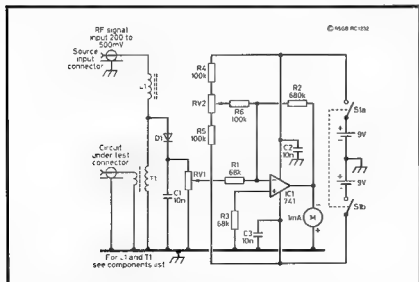
The Dip Oscillator (or GDO) is a very useful instrument. However, it does have a problem due to pulling of the oscillator as the GDO is tuned through the

resonance of the circuit it is coupled to. It would be useful to be able to eliminate this jump and so have a more accurate dip at resonance.

A means of achieving this, by separating the oscillator from the circuitry providing the dip, was given in an article in *RadCom* for December 1996. The article was titled "The Dipper Transformer" and the author was P Buchan G3INR. The basic circuit of the Dipper Transformer is shown in Fig 4(a). At resonance the circuit under test accepts a small amount of RF energy which results in a reduction of the output of the detector. This is a dip as in the normal GDO. The oscillator can be well isolated from the circuit so that the frequency pulling does not occur.

A practical circuit is shown in Fig 4(b) which uses a low power transmitter of up to 10 watts as the RF source. The dipper transformer is connected across the dummy load. At resonance the meter reading will dip as a small amount of energy is absorbed by the resonant circuit. This is a simple circuit but it is limited to use within an amateur band. The claimed accuracy is 2 to 3 kHz at frequencies inferred to be close to the 80 metre band. The only frequency mentioned in the article was 4 MHz.

By using a more sensitive detector it is possible to drive the Dipper Transformer with 200 to 500 mV of RF. This makes



**Fig 5 - Dipper Transformer for use with a signal generator source, using an Op Amp as a DC Amplifier in the detector circuit.**

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- 80/40 and 80-10 trap wire antennas
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- Range of power transistors, driver and PA tubes; eg JAN (USA) 6146W, rugged, to replace 6146A, B and S2001, matched pair \$125 incl fragile pack/post.
- Matchall, all band, fully auto, antenna coupler, 1.8-30 MHz, 150 W, matches any wire length (random), \$285 inc. p/post
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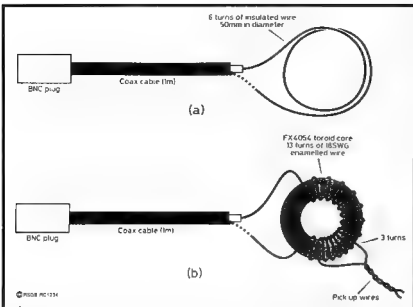


Fig 6 - Test Probes for use with The Dipper Transformer.

possible the use of a signal generator as the RF source and a wider frequency coverage. A suitable circuit is shown in Fig 5 using a 741 series Op Amp as a DC

amplifier to drive the meter. A single supply Op Amp, such as the LM324, could be used with some circuit adjustments.

The detector diode is a Schottky type BAT85. Other similar types could be substituted. The forward voltage should be small and the reverse rating adequate for the RF drive voltage. The BAT85 was quoted as obtainable from Electromail whose part No was 300 978. They may be available locally from RS Components or Farnell.

The inductors were wound on FX4054 toroids obtained in the UK from Maplin (Maplin Part No JR84F-32). T1 had a primary of 12 turns of 24 - 26 SWG enamelled copper wire spaced around the toroid. The secondary was five turns of thin plastic-coated wire wound around the earthy end. L1 was also 12 turns as for the T1 primary. Substitute toroids could be used. They should be in the region of 13 mm outside diameter and suitable for use at the frequency of interest.

Suitable test leads are shown in Fig 6. The one in Fig 6(a) using a small coupling loop is used to couple to tuned circuits. The other in Fig 6(b) can be used to couple to an antenna feed point or into a toroidal circuit.

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## WIA News

### "Single Fee per Site" Policy for Beacons and Repeaters

Following Federal Council discussion of the beacon and repeater fees issue at the Extraordinary Convention of 15-16 February, it was agreed that the WIA should seek to have beacon and repeater fees charged on the basis of a single fee per site, regardless of how many individual transmitters were in operation at a site.

This was considered to be the fairest and most equitable basis on which amateur beacon and repeater fees should be levied, as unattended beacons and repeaters were, after all, amateur stations and as individual amateurs could operate on any number of frequencies at any time, there was no sound reason why amateur band beacons and repeaters should be charged a licence fee per transmitter frequency where individual amateurs paid a single licence fee.

The Council noted that many sites with a multiplicity of beacon transmitters or repeater systems were issued with one call sign but charged a separate licence fee for each transmitter, even though the systems may have been in place for decades. The Federal Council felt that the licensing situation for beacons and repeaters had developed such that the financial burden of the licence fees was creating an impediment to further development and experimentation, and was discouraging the maintenance of existing systems and sites.

The WIA's view that there should be a single licence fee per site for amateur beacons and repeaters regardless of how many individual transmitters are in operation, was subsequently conveyed to the Spectrum Management Agency through the WIA-SMA Liaison Team. It is hoped that the issue may be resolved in the near future.



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## ■ Events

# SEANET is a Success in Chennai

*Thomas E King VK2ATJ\* tells all about the latest SEANET.*

**M**ore than 200 licensed amateur radio operators, shortwave listeners and wireless enthusiasts from throughout India, plus many other Asian countries and Australia and New Zealand attended the 24th SEANET Convention in Chennai – the former Madras – in late November 1996.

The amateur radio movement is nearly 75 years old in India where there are about 13,000 government-licensed operators. Numerous amateur radio conventions and seminars have been organised over the years but this was the first time an international amateur radio convention had ever been co-ordinated anywhere in India.

Effectively and efficiently organised by the Madras Amateur Radio Society, the three day social and educational event was designated as the Rajiv Gandhi Memorial SEANET in tribute to India's late Prime Minister, Rajiv Gandhi, who was active as VU2RG, long before his rise in politics and throughout his government career.

In fact, even a few hours before his

assassination on 21 May 1991 he was in contact with other amateurs, recalled Mrs Sonia Gandhi, Chairperson, Rajiv Gandhi Foundation and herself licensed as VU2SON.

Mrs Gandhi, as Chief Guest, presided over the SEANET '96 valedictory function speaking on the valuable role that amateur radio and the nearly three million operators worldwide play in providing communications in the time of need.

Even fully developed countries rely upon amateur radio operators when other methods of communication fail, she noted. In her role with the organisation, Mrs Gandhi carries on the promotion of amateur radio in India as just one of many duties. A series of Rajiv Gandhi Foundation Amateur Radio Awards is presented every year while, throughout the year, the foundation is instrumental in helping radio clubs in their training efforts, popularising amateur radio and organising demonstrations and conferences.

The Valedictory Function was the concluding event of the SEANET

Conference; the inauguration of the conference by Mr M K Stalin, the Mayor of Chennai, was the first.

Though Mr Stalin was the chief guest, the delegates, at least those from India, were more in awe of a screen idol who also participated in the inauguration.

Kamal Hassan is a well known film star of South India but it was as licensee amateur radio operator VU2HAS that he inaugurated VU96SEA, the SEANET '96 special event station, making the convention's first radio contact with an amateur station in Thailand.

Specially printed SEANET '96 QSL cards were sent to all stations contacted. As well, they were distributed as souvenirs to those attending the convention staged in the suburban Saveria Hotel.

In his SEANET '96 keynote address, Mr N Ravi VU2NRV, Editor, the Hindu, outlined the "Social and Scientific Aspects Beyond the Hobby of Amateur Radio".

The apprehension about the threat to national security, as voiced by some Indian government officials who had no real knowledge about the numerous positive aspects of amateur radio, was totally unfounded, said Mr Ravi.

Compared with modern methods, he noted, amateur radio transmissions which are on internationally assigned bands could not be the preferred mode for the communication of secret messages.

Yet, in countries like India, hobby radio enthusiasts still had to go through unnecessary procedures like police verification and a security clearance to get a licence.

This, plus the slow issue of licences by government authorities, discouraged the hobby. Mr Ravi requested the Mayor of Chennai to set up radio clubs in Corporation of Chennai high schools and consider providing meeting space for radio clubs to train more operators.

Dr S Suresh VU2FSS, President, Madras Amateur Radio Society, welcomed the SEANET '96 gathering. Dr M Gajapathy Rao VU2GJR, Organising Chairman, SEANET '96, proposed the vote of thanks to delegates who later watched a cultural dance presentation and the following day visited historic Mahabalipuram, south of Chennai.



**Noted South India film star, Kamal Hassan VU2HAS, opened the special event SEANET '96 amateur radio station. (Photo by Tom King)**



**Lighting the traditional lamp to inaugurate SEANET '96 was the Mayor of Chennai, Mr M K Stalin. (Photo by Tom King)**

Formed in 1964, the SEANET is an informal gathering of amateur radio operators, most of whom are located in Southeast Asia. All amateurs are welcome, however, and operators from Japan, Korea and other North Asian nations plus Australia and New Zealand and even Africa and Europe regularly make contact with the network.

SEANET is not a club or a society requiring membership or the payment of dues. Rather its main purpose is to serve as a "meeting place" on the shortwave bands for active amateurs in the region. Whenever needed, the net can provide emergency communication throughout this heavily populated region of the world. Over the years emergency communications have been coordinated for a multitude of natural disasters as well as the delivery of medical supplies.

The SEANET conventions date to December 1971 when about 30 amateurs met in Penang, Malaysia and decided that an annual get-together should be organised in the Southeast Asian region.

Since then the SEANET has been organised several times each in Thailand, Singapore, the Philippines, Malaysia and Indonesia. In 1992, the 20th annual SEANET Convention was held in Darwin, Australia, the first time it had been organised outside the Southeast Asian region.

In 1993 it was Bangladesh's turn to be host for the first time and, in 1996, India's first time with the (yet-to-be-

renamed) Madras Amateur Radio Society successfully organising the 24th SEANET in Chennai

*"SEANET in Madras, rather Chennai, will be a difficult act to follow but we will do our best", said Barrie Burns VK8DI, as he made a comprehensive presentation about the facilities and functions scheduled for amateurs attending the SEANET 1997 Convention in Darwin.*

Being organised by the Darwin

Amateur Radio Club, SEANET '97 – the 25th convention of the Southeast Asia Network – is set for Friday, 14 November to Sunday, 16 November 1997.

The planned program is:

Friday, 14 November: Convention Registration; Independent time for explorations of Darwin and eyeball QSOs; Tea "Aussie BBQ Territory Style"; and SEANET call at 1200z.

Saturday, 15 November: Convention Photograph; Tour of Darwin; Lunch at the Parap Markets; Grand Convention Dinner and Entertainment; Group Presentations and SEANET Contest Awards; and SEANET call at 1200z.

Sunday, 16 November: Technical Sessions (3); and Plenary Session.

The venue for SEANET '97 will be the Mirambeena, a 125 room holiday resort located in the centre of Darwin.

Further information and registration forms are available from:

Bill Murphy VK8ZWM, e-mail: [wmurphy@scondwn1.telecom.com.au](mailto:wmurphy@scondwn1.telecom.com.au), packet: VK8ZWM@VK8DA, phone: (08) 8983 2456; or Frank Turnham VK8FT, e-mail: [turnham@ozemail.com.au](mailto:turnham@ozemail.com.au), packet: VK8FT@VK8DA, phone: (08) 8983 2954.

Additionally, amateurs can check into the SEANET which meets nightly on 14.320 MHz at 1200z.

*\*PO Box 140, Kensington NSW 2151*

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**Thomas E King VK2ATJ, one of the amateurs to travel the farthest distance to get to SEANET '96, meets with K G Girmaji VU2GX, one of the oldest amateurs in India. (Photo by Tom King)**

## ■ People

# Visit by LZ1AF

*Ernest Sloman VK2BUE\* enjoys meeting an overseas amateur radio contact.*



**68 galahs perched on VK2BUE's 21 MHz Yagi beam elements (a frequent occurrence), which alters the horizontal into an "inverted vee".**

On Monday, 13 May 1996, Dimiter Petrov LZ1AF arrived at Tenterfield NSW to visit me, Ernie Sloman VK2BUE (ex ZB1AI, VK3DGQ).

We have been corresponding regularly since our first QSO in 1994 on 21 MHz before the low sunspot count caused the MUF to fall below that frequency. Dimiter arrived in Brisbane to stay with his daughter, who is now a naturalised Australian. Subsequently he came to stay overnight with us.

He brought me a present of a "backward" clock, suitably inscribed "LZ1AF to VK2BUE" and, with a smile, said, "Look at this clock and grow younger". At my age I can appreciate that! I am an old-timer aged 83. I have been a CW operator since 1930 in the Royal Navy and, in 1933, started flying as a telegraphist/air gunner. Operating CW in an open-cockpit aircraft is quite an experience. However, 60 years later, I have become a "troglydite".

Dimiter gave my XYL a beautifully crafted wooden container holding a phal of essence of tartar of roses and, for the

two of us, a cassette of Boris Christoff and a Bulgarian choir singing Bulgarian and Russian chants.

I gave him a large and comprehensive dictionary of Australian and aboriginal names and words with details of their origin and meanings. There was a reason for that. Once, during correspondence with Dimiter, I sent him a photograph of 68 galahs perched on my 21 MHz Yagi beam elements (a frequent occurrence), which altered the horizontal into an "inverted vee".

He could not find the word "galah" in any of his reference books. You can be sure he knows both meanings now! I also gave him a cassette of Mahler's second symphony (the Resurrection Symphony), which he enjoyed very much indeed.

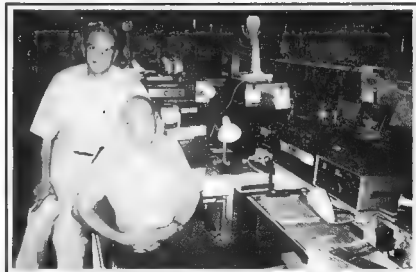
Dimiter is the DX Editor of Radio Bulgaria (since 1957), and has been on the air as LZ1AF since 1950. He taught himself to speak English, and I must say he made a very good job of it.

We really enjoyed meeting Dimiter, a charming and educated gentleman who told us so many things about his country. We also found that we had so many things in common to share. A very rewarding experience.

Viva CW and amateur radio!

\*169 High Street, Tenterfield NSW 2372

III



**Ernie VK2BUE (seated) with Dimiter LZ1AF in Ernie's very well equipped radio shack.**

## ALARA

Sally Grattidge VK4SHE\*, ALARA Publicity Officer

### Yls in Orbit

from Irving ZLIMO, WARO Newsletter

This may be last year's news, but it is still interesting to know about the select few YLs who have experienced life "off the planet".

In March 1996, Shuttle Atlantis (STS-76) was launched with two YLs on board. Linda Goodwin N5RAX and Shannon Lucid, both Mission Specialists accompanied three other hams, Kevin Chilton KC5TEU (Mission Commander), Richard Searfoss KC5KCM (Pilot) and Ronald Sega KC5ETH (Mission Specialist). The aim of the mission was a MIR docking, and research activities. SAREX activities were limited due to work schedules.

Linda sat her Technician's licence in 1990 for the STS-37 mission, has since upgraded to Technician Plus, and married fellow astronaut Steve Nagel N5RAW making them the first married astronaut ham couple (what some people do for publicity!). Linda also used SAREX on her second mission STS-59.

Shannon and her husband are also planning to take their Technician test. She used the MIR callsign R0MIR while in space and made many North American contacts using the 145.550 simplex frequency. Shannon is the first woman to make five flights and at 53 is the oldest woman to fly in space.

Of the 1978 group of women astronauts selected by NASA, Shannon and Rhea Seddon remain active, and Anna Fisher recently returned to active status after several years leave-of-absence. Shannon remained on MIR for about four months with the EO-21 crew, and returned on the Shuttle link-up in August.

Other licensed YL astronauts are Kathryn Sullivan N5YYV, Ellen Ochoa KB5TZZ and Ellen Baker KB5SIX.

### Svalbard

from Kirsti VK9NL, Norfolk Island

The next International YL Meet (August 1998) will be in Svalbard and, as this is only a rather strange sounding name to most of us, it was interesting to hear Kirsti's first hand account of a visit there in 1995 when she

operated while on a snow scooter expedition in the area.

At Frithjovshavn she set up her NO/PRC 111 Military HF rig and dipole and was on the air when a polar bear was spotted about 20 metres away. As a female student had been killed by a bear the week before, Kirsti was understandably nervous and the four-legged QRM brought her transmission to a close for the day.

Kirsti assures us there is no danger in trekking in the wilds if properly equipped. She works in military communications, belongs to a pistol club and owns a 0.357 Magnum. Longyearbyen, a town of 2000 people with shops, hotels, schools and churches, where the YL Meet will take place, is quite safe.

Kirsti's latest trip was to Vietnam. She always tries to get on the air from countries she visits and has operated from Dubai, China and South Africa. "I especially like taking equipment with me out in the wilds and making it work. That is what I call real DXpeditioning," she says.

### Going Dutch

The new Chairman and Editor of the Dutch YL Committee is Ada PA3FSD from Leewarden in the northern part of Holland. Ada wants to know what YLs are doing in other parts of the world and would love to hear from VK YLs. Her address is A C Holtrop-de Vries PA3FSD, Brouwerstraat 25, 8932 LV Leewarden, The Netherlands.

There is also a new address for the Midwinter Contest: Chantal Koekoek PA3GQG, Olmenplein 3, 6463 EV Kerkrade, The Netherlands.

### Priceless Pearl

Pearl ZL2QY, Patron of WARO, is no longer able to take part in contests and nets, as she is now totally blind and has hearing problems. She thanks ALARA members for the years of friendship she has enjoyed, wants them to know they are not forgotten, and the reason for her silence on the air.

Pearl is still able to keep a daily sked with some close friends, with the help of more friends who keep her rig operational and on the right frequency for her. Pearl is a very determined lady who has remained active for many years with failing eyesight, and the members of ALARA wish her well. Pearl is sponsored by Mavis VK3KS.

### Showing the Flag

Dot VK2DDB was involved in the Hornsby and District Radio Club's "Introduction to Amateur Radio" night in January. The club put on a night for the public to see what amateur radio is all about, with HF, two metres, packet, WICEN, ATV, home brew, ancient equipment and, of course, the ALARA table manned by Dot. Apart from showing the visitors that ham radio is not just for OMs, she provided six dozen blueberry muffins and four dozen little iced cakes. Only eight muffins remained at the end of the night, so either the event was well attended or those who were there were rather hungry.

\*Chc. PO Woodstock, QLD 4816

Tel 077 788 642

Packet VK4SHE@VK4RAT#NG QLD.AUS OC

Internet e-mail: rgrattid@ozemail.com.au

■

## WIA News

### 1999 Region 3 ARDF Championships

WIA/ARDF Coordinator, Wally Watkins VK4DO, advises that the 1999 Amateur Radio Direction Finding Championships will be held in South Korea, possibly in the month of September.

ARDF is a combination of hidden transmitter hunt and orienteering, with a history dating back 60 years. Wally's aim is to field a full team of 12 competitors who will represent Australia on behalf of the WIA.

There are four competitor categories: Junior, Senior, Women and Old-Timers.

Anyone interested in being part of the team, whether holding an amateur licence or not, should contact Wally.

Estimated cost for the trip would be around \$AUS2,500 per person. Wally advises that there may be limited assistance for juniors. An amateur radio club may be interested in raising money to support a member who shows an interest in taking part. Selection of team members will take place in the middle of next year, so you should indicate your interest now. If there are more than 12 nominations, a selection trial will be necessary.

Copies of the rules for competitors are available on request. For interest, a 25-minute video of the championships held at Townsville in July last year is available for \$10, post paid. Contact Wally Watkins VK4DO, PO Box 432, Proserpine 4800.

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# AMSAT Australia

Bill Magnusson VK3JT\*

## National Co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR @ VK5WJ

## AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

## AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

## Keplerian Elements

Current keps are available from the Internet by accessing the AMSAT FTP site, <ftp.amsat.org> and following the sub-directories to "KEPS".

## More on the Reception of Mars Global Explorer Signals

An excellent article on this subject appeared in Vol 20, No 1 of the *AMSAT Journal*. It has an account by Darrel Emerson AA7FV of his efforts to receive the weak and elusive signals from the Mars Global Surveyor. He sub-titled his story, "How to Use Millihertz Bandwidths with a Drifting Receiver". The article makes challenging yet fascinating reading.

As an electronic hobbyist whose calculus is more than a little rusty, I appreciated his complete, easy to follow style in writing up the account. The outstanding impression one is left with after reading the article is just how futile it would be to try to hear the signal using even a well equipped amateur station.

Darrel outlined his first experimental setup and the techniques used to achieve frequency stability such that the required "fractional Hertz" bandwidths can be achieved using digital signal processing (DSP). He went on

to describe the computer program written to analyse the data collected by using a soundblaster card in his computer to sample the receiver output at 5000 8-bit samples per second for a period of 105 seconds.

His summary contained a discussion of the possibility of refining the technique to try receiving the signal from the Surveyor when it achieves a Mars orbit. The reference section at the end of the article contains some valuable sources of information for anyone contemplating this kind of work in the future.

The remarkable thing is that the antenna Darrel used is typical of many found in amateur satellite stations, a 15x15 CP Yagi. The real work was done in refining the reference oscillator stability and in developing the software necessary to process the data. Well done Darrel! This work must be close to the frontier of amateur radio operation.

## MIR Operating Frequencies Still in Dispute

Oh, dear! It seems that the frequency pair chosen for MIR at the Region 1 conference is still causing concern. As far as I know, no change is imminent but it is almost certain that a change will have to take place eventually. There does not seem to be any problem in our part of the world but in Region 2, particularly, it has caused serious interference.

A number of "movers and shakers" have expressed surprise that the Region 1 decision was implemented without first referring to the wider IARU committee. Let's hope that cool heads prevail on this one and it is resolved in the run-up to the International Space Station frequency determinations.

## Millennium Satellite

This is an interesting one. Sort of a "Clayton's" OSCAR. A bit like UO-11 in that it is designed with the education community in mind. It is still in the early planning stages and it's uncertain whether it will have a download in the amateur radio bands.

Whereas UO-11 was an experimental satellite with some schools participation, the Millennium satellite will be totally devoted to school science experiments. Schools in UK have already been invited to design an experiment to be carried into space by this satellite. It will feature live colour images of earth, on-board instruments for school science observation and will be linked to the Internet. A World-Wide-Web site is already in operation ([www.mscl.org.uk](http://www.mscl.org.uk)) and through

this you can register interest in any of the levels of activity.

Although the Millennium satellite is primarily set up to support UK education establishments (and these will have first priority), one can safely assume it will fly over VK. It will be interesting to see if any local schools take up the challenge.

Small, simple receiving and decoding apparatus will be available to schools commercially along with technical support and educational materials. It is planned to launch Millennium in late 1998 with the schools equipment being available around the same time. Commissioning will be complete and it will be in full use by April 1999.

## Kepler Elements...Ever Wondered How They are Done?

Clive Wallis G3CWV writes a most interesting column in AMSAT-UK's *OSCAR News* each month. It's directed to those readers who are not licensed amateur radio operators but have an interest in amateur radio satellites. It's good reading.

In issue No 123 he devoted space to an explanation of just how the "kep elements" we rely on so much are produced. It's worth a summary here. The information originally came from Ken Ernandes N2WWD (see the AO-10 keps par below).

Ken served as an orbit analyst instructor and, as a contractor, has designed software currently in use at NORAD. They have a network of more than 20 radar sites around the world as well as a network of optical sites. The radar sites provide positional and Doppler data with a time tag (epoch time) and the optical sites provide angles, right ascension and declination and a time tag.

Whereas important active payloads may be tracked many times a day, stable objects (like OSCARs) and debris are sometimes only tracked every couple of days. The updates are processed at NORAD where the kep elements are computed by correction of the earlier data. High priority objects are corrected manually by orbit analysts.

## Fresh Keplerian Elements for AO-10

Users will be aware that there has not been an official update to the keps for AO-10 for quite some time. Many reports are to hand that the satellite is not easy to track using the old kep set, particularly near perigee. Stacy (W4SM) and Ken (N2WWD) have brought an old Keplerian data set up to date. This data set should be good for tracking AO-10 over the next several months.

OZIMY was in a position to test the set against the actual times of the satellite

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We're overstocked on ex-demo transceivers, so take advantage of this opportunity to save on an excellent HF base-station rig! The FT-990 offers many of the features of the legendary FT-1000 - only in a more compact and economical base station package. Together with clear front-panel layout and labelling, its large backlit meter and uncluttered digital display allows for easy operation.

The receiver uses a wide dynamic range front end circuit and two

DDSs to provide a very low noise level and excellent sensitivity

over the 100kHz to 30MHz range. Transmitter output to

100W on all HF Amateur bands (SSB, CW, FM) with

high duty cycle transmissions allowed. The internal

auto antenna tuner and an in-built power supply

are standard features, while the customizable RF

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and filtering facilities are unique to the FT-990.

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filters, IF bandwidth selection, 90 memories and

one-touch band selection.

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A serious HF transceiver that won't break the bank and doesn't compromise performance at home like many current micro-rigs. The Yaesu FT-840 gives you full 160m-10m Amateur band coverage with 100W PEP output on SSB/CW/AM, continuous receiver coverage (100kHz-30MHz), 100 memory channels, a large backlit LCD screen, an effective noise blanker, and an uncluttered front panel. The FT-840 is simple to use, with useful features like an SSB speech processor for added audio punch, IF Shift to fight interference, and Direct Digital Synthesis oscillators for cleaner transmit and improved receiver performance. Includes DC power lead and hand microphone... just connect your power supply and antenna and start having fun. Cat D-3275



**\$1395**

**2 YEAR WARRANTY**

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## FT-900 Deluxe HF Mobile Transceiver

The Yaesu FT-900 is a revolutionary new 100W HF transceiver that answers the need for a truly practical mobile radio, but without the performance compromises of most micro-sized rigs when used in base station installations.

For convenient mobile operation, a lightweight front sub-panel with access to commonly used controls can be easily mounted away from the transceiver's body using an optional mounting kit. The large "Omni-Glow" backlit LCD screen provides high visibility over a wide range of viewing angles, while the voice and data between the sub-panel and the transceiver are digital to minimize RF feedback or noise pick-up problems. A tough diecast top panel/heatsink and duct-flow cooling systems allows extended transmission periods, while still allowing the optional ATU-2 auto antenna tuner to be mounted inside the transceiver. Cat D-3280

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**\$1995**

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## Yaesu FT-736R VHF/UHF Base Station Transceiver

Whether your interest is in talking through your local repeater, operating SSB DX, or talking to the world via satellite, this high-performance multimode base station transceiver can do it all! In its standard form, the FT-736R provides 25W output on the 2m (144-148MHz) & 70cm (430-450MHz) bands in SSB, CW, and FM modes. Can be expanded to cover the 6m (50-54MHz) & 23cm (1240-1300MHz) bands by installing optional modules.

### Features:

- Digital control with keypad or VFO frequency entry
- Efficient switch-mode AC power supply.
- 100 general-purpose memories
- 10 full-duplex crossband memories, 2 independent VFOs per band
- 2 full-duplex VFOs - transmit & receive frequencies (and modes) can be tuned independently or synchronously for satellite operation
- Adjustable IF Notch and IF Shift filters
- Noise barker 3-speed selectable AGC.
- High-stability (+/-1ppm) PLL reference oscillators.
- Speech processor and VOX for SSB.
- VFO or selectable channel steps on FM.
- Digital input connection for packet TNCs

Cat D-2920



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### Specifications:

Modes

Receiver:

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Dimensions.

LSB/USB (J3E), CW (A1A) FM (F2D, F3E)  
50, 144MHz: Dual Conversion  
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entering perigee eclipse. He reports that this set gives predictions of the perigee eclipse times accurate to less than 1 minute.

#### AO-10

1 14129U 83058B 97054 50000000  
00000010 00000-0 57107-5 0 5005  
2 14129 25 8792 163.0281 6052907 93.3854  
3 13 1701 2 05882272103000

#### RS-16 Successfully Launched

The latest satellite in the Russian RS series was launched on 04-MAR-97 from the new space base Svobodny. Several reports of its reception are to hand. The C'W beacon on 29 408 MHz is loud and clear. At the time of writing the transponders are not yet turned on.

In case you missed last month's column, here are the relevant frequencies.

UPLINK = 145.915 - 145 948 MHz

DOWNLINK = 29 415 - 29 448 MHz

BEACONS = 29 408, 29.451 MHz

PWR 29 MHz DOWN = 1.2 W/4 W

BEACON 1 = 435 504 MHz

BEACON 2 = 435 548 MHz

PWR 435 MHz BEACONS - 1.6 W

Next month, Phase 5! ... what on earth is that?

\*RMB 1627, Midway VIC 1678  
E-mail vk3jg@amsat.org  
ar

## WIA News

### New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of February 1997

L30946	MR K HUBBARD
VK2ABR	MR M FRAZER
VK2ATW	MR G K EDWARDS
VK2BET	MR E J TRIMMINGHAM
VK2BJC	MR B J CONNOLLY
VK2BOJ	MR J W OSWALD
VK2HAQ	MR A CUMMING
VK2IBL	MR B LUZAIC
VK2KS	MR W F TAM-GRANGE
VK2LMA	MR E M HUHTA
VK2MIA	MR D NELSON
VK2MPQ	MR G J FAULKNER
VK2ON	MR A J LYNCH
VK2ZDK	MR R E SMALLACOMBE
VK3HFM	MR F J MESSEMAKER
VK3TBM	MR B J MILLER
VK3TXA	MR C GOETZE
VK6NO	MR E J VALLAS
VK7ZPB	MR P BLUNDSTONE

### Some Wireless Audio Products Will Not be on 70 cm

Philips Consumer Electronics will shortly release in Australia a range of "wireless" audio products, including wireless loudspeakers and other audio peripherals, which will employ low power transmissions on 927 MHz. (See WIA News, page 5, March 1997 *Amateur Radio*.)

The transmissions will be wideband FM to provide what Philips claim to be "digital quality" sound, with a 95 dB signal-to-noise ratio. To avoid interference between adjacently located units, there is a choice of seven channels available. Transmission power levels are in the lower milliwatt range, as these wireless audio products are only intended for applications in and around the home.

Low power wireless devices such as these are covered by a Class Licence for use on the 915-928 MHz band, which is shared with other low power wireless applications.



## Radio and Communications

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That little spot at the top left is Heard Island, a cold and damp (and windy) island just off Antarctica. A hardy VK joined this year's DXpedition to Heard, and we have his story this month. We also report on Kenwood's latest HF box, the TS-570D...



*April's R&C is jam-packed with amateur radio stories. How do these grab you...*

- **The Beverage Antenna.** Got a spare kilometre or two of back yard? If so, we have your antennal
- **50 Years of 50 Megs.** The whole incredible story, narrated by Steve Gregory, VK3OT (6M DXCC)
- **Review: Kenwood TS-570D.** Affordable HF meets inbuilt DSP. Does it help? VK3ND says yes.
- **Build your own desk microphone.** Hank Pruncken, VK5NCA, did, and it works a treat...
- **Modifications.** If you have an Icom IC-737/A or a Yaesu FT-50R or FT-51R you must read this!
- **The best IOTA column in Region 3, three DX columns and more...** all the best regulars every month!

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(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they work so well. Ask your newsagent to keep a copy for you each month, or ring 1800 25 2515 for subscription details. Hurry — you might miss something!)



# Awards

John Kelleher VK3DP - Federal Awards Manager\*

I have received an update on the Zone 29 Award from Christine VK6ZLZ. I was very pleased to receive this information, because it shows that some sections of the WIA are heeding my pleading for relevant details on local and overseas awards for publication in this, your magazine. The one amendment to the abovementioned award was the fee of \$AUS2.00, or five IRCs for overseas stations. Thank you Christine.

This causes me to wonder why I still have only one VK1 in my DXCC listings. It also brings to mind that the VK1 Division sponsors The VK1 Award, or has that award become defunct?

What of the Tasmanian Awards? Are they still in vogue? Daily I hear amateurs looking for local awards and, being frustrated, then looking to NZ and USA countries awards. With conditions the way they are, that procedure can be just as frustrating.

A question was put to me on the ANZA Net (14164 kHz daily) in regard to the ARRL DXCC. Is there a checkpoint in Australia for this Award? The answer is NO. It may be important to know that our own WIA DXCC is run on parallel lines to that controlled by the ARRL and, in my humble opinion, bears equal prestige, an opinion shared by over 400 others, whether WIA members or not. Fees for the local version are \$US5.00 for all others, and FREE to WIA members, which is a fraction of the cost associated with the other version.

A previous issue of this magazine showed a proud Alan Shawsmith VK4SS displaying his WITUZ plaque for working all 75 ITU Zones. I have had phone calls asking for clarification of the actual ITU Zones. Here it is:

## Zone

- 1 KL7
- 2 VE6, VE7, VE8 (South of 80° N and west of 110° W), VY1
3. VE5, VE3/4/8 (South of 80° N and between 90° and 110° W)
- 4 VE2/3/4/8 (South of 80° N and between 70° and 90° W including all Baffin Island.
- 5 OX (South of 80° N).
- 6 W6m W7 (excluding Wyoming and Montana east of 110° W)
- 7 W5 (excluding Mississippi), W7 (Wyoming and Montana east of 110° W), W0
- 8 W1, W2, W3, W4, W5 (Mississippi only), W8, W9, 4U (New York)
- 9 CY9, CY0, FP, VE1, VE2 (east of 70° W), VO1, VO2, VY2
- 10 FO8 (Clipperton), XE, XE4.

- 11 C6, CO, FG, FM, FS, HH, HI, HK0 (San Andres), HP, HR, J3, J6, J7, J8, KG4, KP1, KP2, KP4, KP5, P4, PJ (Neth Antilles), PJ (Saint Maarten), TG, TI, V2, V3, V4, VP2 (Anguilla), VP2 (Brit Virgin Is), VP2M, VP5, VP9, YN, YS, YV0, ZF, 6Y, 8P, 9Y.
12. CP, FY, HC, HC8, HK, HK0 (Malpelo), OA, PY (west of 60° W), PZ, T19, YV, 8R.
13. PY (north of 16.5° S and east of 60° W), PY0 (Fernando de Noronha), PY0, (St Peter & Paul)
- 14 CE (north of 40° S), CE0 (Juan Fernandez), CE0 (San Felix), CX, LU (north of 40° S), ZP.
15. PY (south of 16.5° S), PY0 (Tinnidade).
16. CE (south of 40° S), LU (south of 40° S), VP8 (Falklands).
17. TF.
18. JW (south of 80° N), JX, LA, OH, OH0, OJ0, OY, OZ, SM
19. RIM (MV Island), UA1 (between 60° and 80° N and west of 50° E), UA9 (between 60° and 80° N and west of 50° E).
20. R1F (FJL south of 80° N), UA1 (between 60° and 80° N and east of 50° E), UA9 (between 60° and 80° N and between 50° and 75° E).
21. UA9/0 (between 60° and 80° N and between 75° and 90° E).
- 22 UA0 (between 60° and 80° N and between 90° and 110° E).
23. UA0 (between 60° and 80° N and between 110° and 135° E).
24. UA0 (between 60° and 80° N and between 135° and 155° E).
25. UA0 (between 60° and 80° N and between 155° and 170° E).
26. UA0 (between 60° and 80° N and east of 170° E).
27. C3, EI, F, G, GD, GI, GJ, GM, GU, GW, LX, ON, PA, 3A
28. DL, HA, HB, HB0, HV, I (excluding IG9 and IH9), IS, LZ, OE, OK, OM, S5, SP, SV, SV/A, SV5, SV9, T7, T9, TK, YO, YU, Z3, ZA, IA0 (SMOM), 4U (Geneva), 9A, 9H.
29. EK (Armenia), ER (Moldova), ES (Estonia), EU (Belarus), LY (Lithuania), UA1 (south of 60° N), UA2, UA3, UA4 (west of 50° E), UA6, UN (Kazakhstan west of 50° E), UR (Ukraine), YL (Latvia), 4J (Azerbaijan), 4L (Georgia)

**Prevent pirates - make sure you sell your transmitter to a licensed amateur**

30. EX (Kyrgyzstan west of 75° E), EY (Tajikistan), EZ (Turkmenistan), UA4 (east of 50° E), UA9 (south of 60° N and west of 75° E), UK (Uzbekistan), UN (Kazakhstan between 50° and 75° E).
31. EX (Kyrgyzstan east of 75° E), UA9/0 (south of 60° N and between 75° and 90° E), UN (Kazakhstan east of 75° E)
32. JT (west of 110° E), UA0 (south of 60° N and between 90° and 110° E).
- 33 BY (north of 44° N), JT (east of 110° E), UA0 (south of 60° N and between 110° and 135° E).
34. UA0 (south of 60° N and between 135° and 155° E including Primor'ye and Sakhalin, but excluding the Kuriles).
35. UA0 (south of 60° N and between 155° and 170° E including the Kuriles Islands)
36. CT3, CU, EA8
37. CN, CT, EA, EA6, EA9, IG9, IH9, SO, ZB, 3V, 7X.
38. SU, 5A.
39. AA, A6, A7, A9, HZ, JY, OD, TA, Y1, YK, ZC4, 4W/70, 4X, 5B, 9K
40. EP, YA.
41. A5, AP, S2, VQ9, VU (India), VU (Laccadives), 4S, 8Q
42. BY (west of 90° E), 9N.
43. BY (between 90° and 110° E, excluding Hainan).
44. BV, BY (south of 44° N and east of 110° E, including Hainan), HL, VS6/VR2, XX9
45. JA, JD1 (Ogasawara).
46. C5, D4, EL, JS, TU, TY, TZ, XT, 3X, 5N, 5T, 5U, 5V, 6W, 9G, 9L.
47. S9, TJ, TL, TT, 3C.
48. ET, J2, ST, ST0, T5, 5X, 5Z.
49. HS, VU (Andamans), XU, XV, XW, XZ, 50. DU, IS (Spratly).
51. H4, P2, YB8/9 (east of 130° E).
52. D2, TN, TR, 3C0, 9Q, 9U, 9X.
53. C9, D6, FH, FR (Reunion), FR/G, FR/JE, FR/T, SZ, 7Z, 3B6, 3B7, 3B8, 3B9, 5H, 5R, 7Q, 9J
54. V8, VK9X, VK9Y, YB1-7, YB8/9 (west of 130° E), 9M2, 9M6/8, 9V.
55. VK4, VK8, VK9, (Willis)
56. FK, VK9 (Mellish Reef), YJ, 3D2 (Fiji), 3D2 (Conway Reef), 3D2 (Rotuma)
57. A2, V5, ZS, ZS8, 3DA, 7P
58. VK6
59. VK1, VK2, VK3, VK5, VK7.
60. VK9 (Lord Howe), VK9 (Norfolk), VK0 (Macquarie), ZL, ZL7, ZL8, ZL9
61. KH1, KH3, KH4, KH5 (Palmyra but not Jarvis), KH5 (Kingman Reef), KH6, KH7, Z3 (Northern Line Is only)
62. A3, FW, KH5 (Jarvis), KH8, T31, ZK1 (North Cooks), ZK2, ZK3, 5W
63. CE0 (Easter Is), FO, T32, VR6, ZK1 (South Cooks).
64. KC6, KH2, KH0, V6 (west of 150° E)
65. C2, KH9, T2, T30, T33, V6 (east of 150° E), V7.
66. ZD7, ZD8, ZD9



# "VK3LZ calling!"

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A. J. H. W. A. C. 1997

67. Antarctica (north of 80° S and between 20° W and 40° E), 3Y (Bouvet).
68. FT (Amsterdam), FT (Crozet), FT (Kerguelen), VK0 (Heard).
69. Antarctica (north of 80° S and between 40° and 100° E).
70. Antarctica (north of 80° S and between 100° and 160° E).
71. Antarctica (north of 80° S and between 160° E and 140° W).
72. Antarctica (north of 80° S and between 140° and 80° W), 3Y1 (Peter I Is).
73. Antarctica (north of 80° S and between 80° and 20° W), VP8 (South Georgia), VP8 (South Orkneys), VP8 (South Sandwich), VP8 (South Shetlands).
74. Antarctica (between 80° and 90° S South Pole).
75. 1W (north of 80° N), OX (north of 80° N), R1F (FJL north of 80° N), UA0 (Severnaya Zemlya north of 80° N), VE8 (north of 80° N).
90. JD1 Minami Toroshima.

This award may be claimed by any

licensed radio amateur who is eligible under the General Rules, and who can produce evidence of having contacted, since 15 November 1945, land based amateur radio stations in at least 70 of the 75 broadcasting zones as defined by the International Telecommunications Union (ITU)

The certificate holder may claim, on payment of a contributory charge, a handsome plaque with a plate detailing name, callsign, date, and number of the award. Additionally, an amateur providing evidence of having contacted all 75 ITU zones may claim the Supreme Plaque in recognition of the magnitude of his/her achievement, again on payment of a contributory charge.

Claims should be sent to: RSGB HF Awards Manager, Fred Hanscombe G4BWP, Sandholm, Bridge End Road, Red Lodge, Bury St Edmunds, Suffolk IP28 8LQ, United Kingdom.

\*4 Brook Crescent, Box Hill South, VIC 3128  
Phone 103, 9889 8393

ET

## Club Corner

### Radio Amateur Old Timers Club

The annual meeting and luncheon of the Radio Amateur Old Timers Club of Australia was held on Tuesday, 11 March at the Bentleigh Club.

Your committee was re-elected, with the exception of John Tulton VK3ZC who did not offer for re-election. John had served on the committee of the club since its inception and, for many years, organised our annual series of QSO parties. Club members owe a debt of thanks to John for his many years of service. Milton Crompton VK3MN was elected to fill the vacancy and will take office on 31 July.

The guest speaker was Phil Williams VK5NN who travelled over from Victor Harbour for the occasion. Phil was one of the first group to be trained in the top secret techniques of radar with the aim of going to England and operating there. Japan's entry into WWII changed that plan and Phil started operations in Western Australia.

At the end of the war, with the rank of Flight Lieutenant, Phil was in charge of radar operations in eastern New Guinea. Returning to duty as an electrical engineer with the South Australian Electricity Trust, Phil spent some time in England studying the use of atomic energy for power generation. For some years after the war, Phil spent some time each year at RAAF Headquarters in Melbourne as a valued member of the RAAF Reserve. He also spent a lot of time as an

office-bearer with the WIA at both federal and state levels, and was a regular contributor of articles about SSB operation in *Amateur Radio*.

The theme of Phil's talk was the development of radar and the enormous contribution of Australian industry to the war effort.

A suitable vote of thanks to Phil was moved by Bill Rice VK3ABP who knew him when they were both studying at Adelaide University after the war.

We were pleased to have with us as a guest Mrs Jean Hillier (nee Maney), the author of the recently published book "No Medals in This Unit". Jean was one of the first women to enlist in the Australian Army Signals in 1942 and be a top secret Kana Code operator like the "Eavesdroppers" of the RAAF Wireless Units.

Her book, available from Daycom Communications Pty Ltd at \$15 plus packing and postage, tells the personal stories of Jean and a number of other women who served in this operation.

Jean was delighted to meet so many people who had been involved in the production and use of the AR7 receiver.

Ken Matchett VK3TL, the curator of the amazing WIA Federal QSL Collection, had on display a series of folders containing what must surely be a unique collection of QSL cards from every known DX country both past and present.

# Contests

Peter Nesbit VK3APN - Federal Contest Coordinator\*

## Contest Calendar April - June 1997

Apr 5/6	SP DX Contest (CW & SSB)	(Mar 97)
Apr 11/13	JA DX High Band CW	(Mar 97)
Apr 12/13	International HF Grd Square Contest	(Mar 97)
Apr 12/13	"King of Spain" DX Contest	
Apr 19	Australian Postcode Contest	(Mar 97)
Apr 19/20	SARTG AMTOR Contest	
Apr 19/20	Israel DX Contest	(Mar 97)
Apr 26/27	Helvetia DX Contest (Switzerland)	(Mar 97)
Apr 26/27	SP RTTY Contest	
May 3/4	ARI DX Contest (CW/SSB/RTTY)	
May 10/11	CQ-M DX Contest	
May 17/18	Sangster Shield Contest	
May 24/25	CQ WPX CW Contest	(Feb 97)
Jun 1	Portugal Day Contest (SSB)	
Jun 7/8	IARU Region 1 Field Day (CW)	
Jun 14	QRP Day Contest (CW)	
Jun 14	Asia-Pacific CW Sprint	(Jan 97)
Jun 14/15	ANARTS RTTY Contest	
Jun 14/15	South America WW Contest (CW)	
Jun 21/22	VK Novice Contest	
Jun 21/22	All Asia CW DX Contest	
Jun 28/29	ARRL Field Day	

Despite starting out relaxed and well organised, last weekend finished up in total chaos. I had intended to make a full-on effort for the 60th Anniversary Commonwealth Contest (BERU) and, as part of the preparations, had disassembled the station a week or so earlier to tidy up the mains wiring and shield the operating desk. The reason for this was to eliminate RF from the computer on 80 m, which had been a nuisance for some years, restricting me to manual logging on that band. With visions of hundreds of G and VEs waiting to be worked on 80 m (well, we all like to dream), I was determined to fix the problem before the beloved "BERU" arrived.

My yearly enthusiasm for installing some new antennas had also predictably rolled around, so there I was on Friday night with the station still in bits, convinced I'd be able to get it all back together and have time left over for the "ten thousand times up and down the ladder ritual" which seems to accompany the installation of every new antenna.

Saturday morning arrived, and without warning something snapped in my brain. I'd heard about all I could take regarding the Melbourne Grand Prix, so I grabbed the XYL and said "we're going". All thoughts of getting the station back together were pushed into the background, because (as I kept telling myself) "there's always tonight before it starts", and "I'll do the antennas tomorrow". Ha ha, silly me!

A couple of hours after returning home,

my brain was still in orbit from the excitement of the day (I recommend that anyone planning to enter a contest stays well clear of international motor races beforehand). Finally, fifteen minutes before the start of the contest, I managed to steer myself into the shack to survey the scene. Slowly swinging my gaze from left to right, I took in the metal filings and drill shavings strewn across the desk, the mains wires and master switch yet to be connected, and the various bits of equipment scattered around the room and in the spare bedroom. "Guess what?" I said to the XYL, "I'm having an early night".

Throughout the night I was tormented by dreams of all those Gs and VUs calling "CQ BERU", and at 5 am leapt out of bed to join the fray. "I'll just throw a few wires together, shouldn't take more than five minutes", or so I thought. Upon entering the shack, my blood froze as I surveyed the scene, which looked even worse than the previous evening. I quietly slunk back to bed, consoling myself with the thought that I should be able to work most of the Gs on long path, and there probably weren't any VUs active this year anyway (gee, doesn't this guy ever learn?)

Sunday went all too quickly, with the station finally back together at 8 pm. As I listened around, I noticed several VKs sporting numbers close to four hundred (which is very good for the BERU), and many good signals from VE on 40 and 80.

Once again, I had started a contest "slightly late", and missed heaps in the process. There's not much that one can do in the final three hours, but at least I could now use CT on 80, not that it was needed!

For once there's no moral to the story. I might have missed most of the action, but at least the shack is finally RF-free and, unexpectedly, the level of mains noise or receive seems to be lower. And, of course, I'm prepared a whole year in advance for next year's BERU! Now, how many people can claim to be as well prepared as that?

For information and assistance this month, many thanks to VK3KWA, I2UIY, OE4BKU, and ZL1AAS. Until next month, good contesting!

73, Peter VK3APN

## ARI International DX Contest CW/SSB/RTTY

2000z Sat to 2000z Sun, 3/4 May

This contest occurs each year on the first full weekend of May. Anyone can work anyone else, and categories are single operator CW, SSB, RTTY or mixed; multi-operator single transmitter mixed; and SWL mixed. Bands are 160-10 m (no WARC). The same station can be worked on the same band once each on CW, SSB, and RTTY, but the multiplier can be claimed only once for that band. Once a band or mode has been used, 10 minutes must elapse before it can be changed. Send RS(T) + serial number, Italian stations will send RS(T) + province.

Score 10 points per Italian QSO, three points per QSO with stations in another continent, one point per QSO with stations in own continent, and zero points per QSO with stations in own country. Final score equals total points from all bands times total multipliers from all bands.

Multipliers are the sum of Italian provinces (max 103) and countries (excluding I and ISO) on each band. Province codes include: I1: AL AT BI CN GE IM NO SP SV TO VB VC; IX1: AO; I2: BG BS CO CR LE LO MI MN PV SO VA; I3: BL PD RO TV VE VR VI; IN3: BZ TN; IV3: GO PN TS UD; I4: BO FE FO MO PR PC RA RE; I5: AR FI GR LI LU MS PI PT SI; I6: AN AP AQ CH MC PS PE TE; I7: BA BR BS LE MT TA; I8: AV BN CB CE CZ CS IS KR NA PZ RC SA VV; IT9: CL CT EN ME PA RG SR TP AG; I0: FR LT PP RI ROMA RM TR VT; ISO: CA NU SS SR.

Use a separate log for each band, and a check log (ie sorted call sign list) for 100+ QSOs on any band. Send log within 30 days to: ARI Contest Manager I2UIY, PO Box 14, 27043 Bioni (PV), Italy. Logs on disk are welcome, and an MS-DOS logging program is available from the contest manager for \$US5.00 (to cover disk/postage).

## CQ-M Contest (CW, Phone, Mixed)

2100z Sat to 2100z Sun, 10/11 May

Sponsored by the Krenkel Central Radio Club, this contest runs on the second full weekend of May each year. Categories are single operator, single and all band, multi-operator single transmitter; 20 m SSTV; SWL. Bands are 160-10 m. No cross-mode QSOs please. Call "CQ-M", and exchange RS(T) (or RSV on SSTV) plus serial number. Score one point per QSO with own country, two points with a different country in the same continent, and three points with other continents (continents as for WAC). The final score equals total points times total number of countries from each band. Countries are according to the R-150-C list, which is similar to the ARRL DXCC list except for former USSR countries. Serious competitors should review the R-150-C list. Awards apply, and there are achievement awards for stations making 200+ QSOs. Mail logs by 1 July to: Krenkel Central Radio Club, CQ-M Contest Committee, Box 88, Moscow, Russia.

## Sangster Shield

0800-1100z Sat and 0800z-1100z Sun, 17/18 May

This unusual contest emphasises low power operation. The object is to work as many ZLs on 80 m CW as possible. QSOs can be repeated once per 1/2 hour period, ie 0800-0830, 0830-0900, etc. At least five minutes must elapse between repeat QSOs with the same station, or else another station must be worked in between. Send RST plus power output; ZLs will send their RST/branch/power. Non-ZLs using up to 5 W score 10 points per QSO with a ZL, if the ZL worked is using up to 5 W; or five points per ZL using over 5 W. Non-ZLs using more than 5 W score five points per QSO with a ZL using up to 5 W. QSOs between stations where both use more than 5 W are invalid for the contest. Final score equals total points times number of ZL branches worked. Send logs to reach Contest Manager ZL3KR, 4

Exton Street, Christchurch 8005, NZ by 13 June. Certificates will be awarded to the highest scoring non-ZLs in their respective call areas.

## Results of 1996/97 Ross Hull Memorial VHF-UHF Contest

Presented by John VK3KWA

Congratulations to Adrian Pollock VK2FZ/4, who has won again with an enormous score of over 19,000 points. Second place goes to Gordon McDonald VK2ZAB with over 15,000 points, and third to Rob Ashlin VK3DEM.

In band-by-band scoring, Adrian scored equal top on 6 m with Phil Helbig VK5AKK. Glenn McNeil VK4TZL and Rob Ashlin VK3DEM came close behind. On 2 m, the top score went to Gordon VK2ZAB, followed by Phil VK5AKK and Adrian VK2FZ/4. On 70 cm, the top scores went to Adrian and Gordon.

The highest score achieved on any band was 7470 points scored by Adrian on 1296 MHz. It was also good to see two entries for 2.4 GHz and one for 10 GHz.

Congratulations to Adrian for his second consecutive win this year. Competition should be fierce again next year and, with some major changes to the rules (see below), it will be hard to predict who will come out on top.

## Some Notable Contacts

In spite of the very high scores made by the top stations, some notable contacts were made by entrants who described their stations as modest. It proves again that big beams and linears can come in very handy, but it is still possible to do well without them.

6 m: Many logs, including most VK call areas and large numbers of ZLs.

2 m: VK2FZ/4 worked VK3AFW via meteor scatter. VK5AKK made a large number of VK2 and VK6 contacts. VK3DEM worked seven VK call areas and ZL3. VK3ZLS worked six call areas using only 30 watts. VK7XR made 17 VK4 contacts and 11 VK2 contacts. VK2BBF worked six VK call areas and made 16 ZL

contacts. VK2DVZ made 13 ZL contacts.

70 cm: VK3DEM worked six call areas and VK3CY worked five. VK5AKK made 18 VK6 contacts.

23 cm: VK2ZAB worked VK2FZ/4 every day, and also ZL1AVZ for a new VK2 distance record of 2305.1 km. VK3DEM worked five call areas.

## Activity

Activity was much lower than last year, despite better propagation. Most contest activity was between a small number of "top" stations, who built up high scores mainly by working each other. People with more modest stations, including some with quite good ones, were not in demand for contest points, and this led to the lowest level of activity for some years.

The reason is that under the "best 100" scoring, a top station does not need to work anyone locally or even at medium distances. Gordon VK2ZAB pointed out that his average two metre distance was 1200 km, and he was even able to eliminate some eight point contacts from his log. Adrian VK2FZ/4 made an enormous score by repeatedly working the same interstate stations, which he found became quite boring.

It seems that the "best 100" should be dropped if there is to be a revival of activity. There is also a general consensus that there should be a limit on the number of repeat contacts with the same station, and that (as Guy VK2BBF put it) "entrants should be forced to work a larger number of different stations".

## Other Comments

There were some complaints that the contest is too long because it is necessary to live in the shack for a month in order to get the best possible score. Ross VK2DVZ suggested cutting it back to two weeks, or else running it over five weekends.

The first attempt to fix the problem was the "best seven days" scoring, and the second was the current "best 100" system. Both of these systems made it unnecessary to live in the shack for the full contest period, but neither has worked because most serious entrants are still doing it.

But what about shortening the contest? This was tried in 1988. The contest ran for just two weeks, and it was over before most people realised that it was on. Many amateurs were unable to join in because they did not happen to be free during those two weeks, and the best propagation occurred before and after the contest. It was a fizzer. And there were still complaints about having to live in the shack for a fortnight! The same thing would probably happen again if it were shortened, and even more so if it ran only on weekends.

Ever since 1950, except for one year, the contest has usually run for four weeks, and sometimes as many as seven. I feel that a reasonable duration is a very important part of the basic purpose of the contest, which is to get more stations on the air for as much of the DX season as possible. But how to prevent people from spending every waking hour in

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the shack? I do not think I can, even if the contest only ran for one week. All I can do is make it unnecessary.

The 6 metre scoring cap also came in for criticism. It is part of a policy to try to keep the scoring potential of all bands as equal as possible, and to prevent the contest from being won on the strength of bonanza points from sporadic E openings. But under the present rules, 6 m has much less scoring potential than the higher bands. This needs to be changed. Other entrants suggested the opposite, drop 6 m altogether. There is no pleasing everyone in this case!

## Next Year

It seems clear to me that we need new rules which aim for the greatest possible participation, and require many more contacts to be made. There should also be a new approach to the 6 m dilemma. I suggest several changes.

The first is to drop the "best 100" scoring and have no limit on the number of scoring contacts that can be made. To prevent the need to work everything that moves, this could be combined with a moderate minimum contact distance.

The second is to return to the "best 7 days" scoring. This would limit the number of repeat scoring contacts to seven, and make it necessary to work many more different stations. It also means that entrants would not need to spend every day in the shack.

The third is a suggestion made by John VK3BQS, which is to drop the 6 m scoring cap, and to adopt a new rule to prevent any one band from contributing the lion's share of the total score. John suggests that all bands should be scored on the same basis, but that anyone entering a multiband log should be allowed to derive no more than 50 per cent of their total score from any one band. This should encourage more multiband activity, because every station worked on an entrant's best band would have to be balanced by a contact made on another band.

As usual, I would very much appreciate comments on these proposals. No decision has yet been made, although I feel that the above ideas would make the contest much more attractive. If you have any other ideas, please let me know. Comments please!

**Have you  
advised the  
SMA of your  
new address?**

## 1996/97 Ross Hull Contest Results

Call	Name	50MHz	144MHz	432MHz	1.2GHz	2.4GHz	3.4GHz	10GHz	TOTAL
VK2FZ4	A Pollock	1200	3984	5719	7470	858	-	-	19231
VK2ZAB	G McDonald	339	5004	5334	4570	-	-	-	15247
VK3DEM	R Ashlin	1190	3084	3025	2910	832	-	928	11969
VK2DVZ	R Barlin	-	3508	3129	4140	-	-	-	10777
VK5AKK	P Helbig	1200	4048	3689	170	-	-	-	9107
VK3TMP	M Pickering	211	3164	3003	1790	-	-	-	8168
VK7XR	A Hay	967	3064	2233	1300	-	-	-	7564
VK3CY	D Clarke	-	3232	3668	-	-	-	-	6900
VK4TZL	G McNeil	1195	1700	1090	-	-	-	-	3985
VK3AFW	R Cook	176	1822	1344	-	-	-	-	3342
VK2BBF	G Fletcher	-	3152	-	-	-	-	-	3152
VK4KZR	R Preston	-	800	238	980	-	-	-	2018
VK3ZLS	L Sim	-	1780	-	-	-	-	-	1780
VK4IC	B Gibbs	294	876	-	-	-	-	-	1170
VK3AIE	B Gardiner	-	32	21	-	-	-	-	53

## Ross Hull Contest

### List of Winners (1950-97):

1950-51 VK5QR	1965-66 VK3ZDM	1981-82 VK6KZ
1951-52 VK5BC	1966-67 VK5HP	1982-83 VK6KZ
1952-53 VK4KK	1967-68 VK3ZER	1983-84 VK6KZ
1953-54 VK6BO	1968-69 VK5ZKR	1984-85 VK3ZBJ
1954-55 VK4NG	1969-70 VK3ZER	1985-86 VK3ZBJ
1955-56 VK3GM	1970-71 VK4ZFB	1986-87 VK3ZBJ
1956-57 VK3ALZ	1971-72 VK5SU	1987-88 VK5NC
1957-58 VK3ALZ	1972-73 VK5SU	1988-89 VK5NC
1958-59 VK3ALZ	1973-74 VK5SU	1989-90 VK3XRS
1959-60 VK4ZAX	1974-75 VK5SU	1990-91 VK3XRS
1960-61 VK3ARZ	1975-76 VK5SU	1991-92 VK3XRS
1961-62 VK5ZDR	1976-77 VK4DO	1992-93 VK3XRS
1962-63 VK4ZAX	1977-78 VK3OT	1993-94 VK3XRS
1963-64 VK5ZDR	1978-79 VK4DO	1994-95 VK3XRS
1964-65 VK3ZER	1979-80 VK3ATN	1995-96 VK2FZ4
	1980-81 VK6KZ	1996-97 VK2FZ4

## VK and ZL RESULTS of 1997 VK/ZL/OCEANIA DX CONTEST

*Presented by John Litten ZL1AAS, NZART Contest Manager*

Here are the VK and ZL results of the 1997 Contest. It has been my custom to get them out as soon as possible; however, because the overseas logs are still arriving, it will be a month or two before the complete results can be published.

Phone entries are up slightly this year, but look at the CW section. Who said CW is dead? Just look at the 40 metre scores in particular!

### Phone, Single Operator:

	80m	40m	20m	15m	10m	Score
VK1NTW				60358		60358
VK2APK		200340				200340
VK2PS	2684					2684
VK2VM		4640	2028	114444		212160
VK2XT	60	5220	10710	215940	3	457758
VK4BAY		1105	270	26350	612	58000
VK4EET		10140	1800			29820
VK4LAA	10					10
VK4MZ	1440	193550	35074	113920	5832	1252728
VK5AI		245	441	114444		212160
VK8AV			6204	36720	240	87248
VK8DK		550	156			1496
ZL1AIZ	64350	30030	1024	512		270111
ZL1ANJ		22265	88	84900		206298
ZL2AMI		40040		336		97482
ZL2AWH	480	2090	4650	2184		39445
ZL3TX	3800	100	1380			14363
ZL4AV	40	405	1054	8		4532

**Phone, Multi-operator:**

VK4EMM	1000	41625	11475	306740	7560	1015105
Phone, Check Logs. VK5OE, V175RAAF, ZL3GQ						
CW:						
VK2AIC	40	200	525	180		4500
VK2APK	25850	875670	22302	9328	864	2072283
VK2AYD	52510	602880	17368	7154	585	1734486
VK2BQQ		240625				240625
VK2DID	100	3960	169	180		11904
VK2KM	40	987480	15200	18460	2112	1872351
VK2PS	280	97745			1584	139973
VK2VM	83070					83070
VK3APN	1800	342990				385670
VK4EMM	93790	1469590	12150	25872	10032	3906396
VK4ICU		500	2052	3960	3393	37074
VK4TT			39878			39878
VK4XA					18639	18639
VK5AGX			1120			1120
VK5AJ	120	8085	3216			29568
VK5GN	34170	71440	11776	7700	1020	544004
VK6IV		12375				12375
VK8AV	72000	333900	43254	57980	8364	2233660
V175RAAF	10	33945	9086	9794	1311	189612
ZL1AII	2040	21390				38110
ZL1ALZ	158110	181700	1960	1914		937980
ZL1HV	320	28810	7632			88088
ZL2AGY		1348950				1348950
ZL2AWH	240	2280	210	144		9585
ZL2CD		193590				193590
ZL2REX	90	47150	1998			80398
ZL3GQ	112500	1419795	37026	8816		3709228
ZL4OK	13440	91060	525	4872	3	277278
ZL4OL	29140	142975	110	8		328320

Check Logs: VK3KS, VK3XB, ZL1ALZ, ZL2VS, ZL4GU

\*PO Box 2175, Caulfield Junction, VIC 3175  
pnesht@melbpc.org.au

the Division to promote all aspects of amateur radio and for us to introduce more club-type activities. He also sought the views of members on obtaining premises for Divisional activities

**Closure**

This will be my final *Forward Bias* column. I would like to thank my readers and the Publications Committee for their support over the last two years. My association with *Amateur Radio* will continue through the *Novice Notes* column.

**VK2 Notes**

Peter Kloppenburg VK2CPK

It was pleasing for VK2 Council to note that membership increased by 101 members between February 1996 and February 1997. This increase came about despite the bad propagation conditions that prevail during the low sun spot minimum. But it is precisely because of this that the amateur community feels the need for up-to-date information about possible openings on HF and VHF and the various propagation modes that can be used. All of this, such as predictions and anecdotal writings, are regularly published in this journal.

Council believes that the journal and its contents make a very significant contribution to the enjoyment of the hobby of amateur radio by publishing details and data of on-air activity.

Council received a report from Ken Westerman VK2AGW, Affiliated Clubs Officer, about the operation of the Affiliated Clubs Net. Ken has decided to temporarily discontinue the net until further notice. He commented that participation and attendance had been poor and therefore the net was not fulfilling a useful purpose. Council has decided to reinstate the net at 7.30 pm on a day other than Sunday. The matter of selecting a suitable day will be placed on the agenda of the next Conference of Clubs (CoC).

Council has decided not to hold the CoC on the day following the Annual General Meeting (AGM). Instead, the CoC will be held on Saturday, 10 May, 1997.

The position of Trash and Treasure coordinator has been taken over by the Secretary until the next AGM. This decision was taken by Council because of the possible conflict of interest by Councillor Kloppenburg, who is in the business of trading in electronic instrumentation while at the same time holding the portfolio of Trash and Treasure coordinator on Council.

During the February Council meeting, Peter Jensen VK2AQJ, President, issued draft copies of the Memorandum of

**Divisional Notes****Forward Bias - VK1 Notes**

Peter Parker VK1PK

**Ginini Thieves Let Off**

VK1 amateurs have failed in their bid to win compensation from those responsible for the theft of repeater equipment from Mount Ginini. *Forward Bias* readers will recall that one adult and one juvenile were found guilty of the theft last year. Because of the severity of the crime, the matter was referred to the Supreme Court for sentencing.

Handing down his decision on Tuesday, 18 February, His Honour Justice Terrance Higgins gave both offenders 104 hours each of community service work as punishment. The prosecution's bid for compensation was refused.

**AGM Results**

The VK1 Division has a new committee following the Annual General Meeting held

on Monday, 23 February. Most key positions were filled but a ballot was not required due to insufficient nominations. The Committee comprises: President, Hugh Blemings VK1YYZ; Vice President, Gilbert Hughes VK1GH; Vice President, Simon Trotter VK1AUS; Secretary, John Woolner VK1JET; Treasurer, Les Davey VK1LD; Federal Councillor, Richard Jenkins VK1RJ; Committee member, Jim Muller VK1FF.

The position of Broadcast Officer was not filled, meaning that the future of the VK1WI weekly broadcast is in doubt at the time of writing. In addition, the committee is under strength, with several committee member positions still vacant.

February's meeting was a drawn-out affair, running for over two hours. Early on it looked as if we were not even going to reach a quorum, though one or two late comers saved the day. The incoming president, Hugh Blemings VK1YYZ, spoke of the need for



Seen at the Radio Vet's Xmas party at Radio House on 19 December 1996: (l to r - back row) Ray VK2DRC, Pierce VK2APQ, Ray VK2BBI, Franklyn VK2DYP, Basil VK2EQY, Bill VK2EXX, George VK2BQU, John VK2MJS. (l to r - middle row) Rick VK2PH, John VK2WRT, Mike VK2YGC, Ivan VK2ANI, Tim VK2ZTM. (l to r - front row) John VK2HJM, Max VK2AFE.

Association (M&As). The Policy and Strategy subcommittee, of which he is Chairman, has spent considerable time re-writing the M&As, also known as the Constitution. This document was first written in about 1910, when amateur radio was beginning to be thought of as a hobby. Things have changed considerably since then, and the M&As need an update to make them relevant to the present Institute's operations and the members' requirements.

Council has allocated the portfolio of "Deceased Estates Officer" to Peter Jensen VK2AQJ, who happens to be the President as well.

Council is worried about the large number of books out on loan and overdue. A total of 200 books are unaccounted for. If anyone has a WIA library book on his shelf which is overdue, please return it as soon as possible.

Due to problems with finding suitable volunteers to run the office on Monday evenings, Council has decided to cancel office hours for that evening.

### "QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

Elections were held in February for the office bearers in the three Branches in the State. There were very few changes noted in the South and the Northwest. However, in the North some new faces have come forward. In

the South, Andrew Dixon VK7GL was re-elected as President with John Bates VK7RT being Secretary and Mike Jenner VK7FB re-elected as Treasurer. In the Northwest, David Spicer was re-elected as President with Ron Churcher VK7RN as Secretary. A new Treasurer was elected, Terry Ives VK7ZTI. In the North, Geoff Wells VK7ZOO was elected as President with Allen Burke VK7AN as Vice-President. Robin Harwood VK7RH is Secretary and Tim Holloway VK7TMM was elected as Treasurer.

In the South and the North new faces were elected to be the Branch WICEN Officer, being VK7JGD and VK7BE respectively, whilst the Northwest is currently vacant.

12 nominations were received for Divisional Council and the results of this will be given in next month's column, along with details of the Annual General Meeting. Two Councillors from 1996 did not re-nominate and we would like to thank Joe Gelston VK7JG and Terry Ives for their contribution to Divisional Council.

The North and Northwestern Branches held a combined meeting in Deloraine on 12 March. A good time was enjoyed by all attending, especially the supper put on by our Deloraine hosts. Our thanks go to Frank Clark VK7CK, Bruce Cameron VK7GC and Bill Carter VK7AK for organising this annual get-together.

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# How's DX?

Stephen Pall VK2PS\*

Who said that Morse code is a dying art of communication and should be abandoned by the amateur service? The statistics of the Heard Island DXpedition show a different picture. I note the following about the mode used for QSOs: Japan, CW 8,991, SSB 5,473; Europe, CW 21,358, SSB 13,756; Eastern North America, CW 7,555, SSB 6,601; Central North America, CW 3,050, SSB 2,537; Western North America, CW 2,367, SSB 1,668, rest of the world, CW 1,962, SSB 2,599

What about Australia and New Zealand? You guessed it! The VK/ZL group was the only one where the SSB mode was in the majority: SSB 447, CW 253, RTTY 13. Does this kind of statistic tell us anything?

To me, and I am not an expert in analysing statistics, the above figures show the following:

1. the practice of using Morse code, being the original digital mode in CW, is not dead in the rest of the world;
2. one hundred watts of CW power appears to be more useful than, say, 200 watts of SSB power;
3. when propagation is not ideal, a CW signal goes further than an SSB signal; and
4. in a pile-up, a CW signal can be more easily detected than an SSB signal

Anecdotal evidence suggests that Morse code is still very useful, especially in emergency situations. A few weeks ago it was reported in broadcast news that an inter-island trading ship sank in the Cook Island waters, due to an engine fire. The twenty five occupants of the 250 tonne ship were forced into life rafts and a dinghy, and were drifting. The pilot of a passing commercial airliner spotted the survivors and used the plane's landing lights to indicate to them in Morse code that help was on its way. They were all rescued.

Changing the subject to propagation, there is no doubt that we have passed the minimum point of Cycle 22. Good occasional openings on 20 metres, coupled with marginal activity on 15 and 10 metres, indicates that we are now in Cycle 23. Talking to Dr Richard Thompson from IPS Radio and Space Services the other day, he confirmed that we have passed the minimum of the past cycle. However, scientists all over the world are not yet certain of the exact date of the minimum. Mathematical formulae used in calculating the date refer to smoothed average sunspot numbers; therefore, it takes a long time

before all the scientific data is available to calculate the exact date.

In the opinion of Dr Thompson, we reached the minimum in the latter part of 1996 when the sunspot number was a very low 8.2. Other scientists are of the opinion that the minimum was in mid-October 1996. It appears that the final answer will be given in approximately six months time.

At present we have a good mixture of old and new spot numbers on the sun. The month of February looks like being the watershed for the new cycle. There is a good possibility that the number of sunspots in the old cycle will be more than the spots in the old cycle.

Dr Thompson predicts that the "T index" will rise to about 40 by the end of the year and we will reach the peak of Cycle 23 early in the year 2000, only three years away.

## Kerguelen Island - TXOK

The expeditioners on their way back from Heard Island VK0KIR planned to have a 24 hour, or at least an overnight, activity from Kerguelen. They packed one huge crate with two complete stations in preparation for the event.

However, as they approached Kerguelen a storm caught up with them which decreased their chances of operating. The French Antarctic co-ordinator said that, because of a depression heading towards Kerguelen, the crate could not be off-loaded and the expeditioners were allowed only two hours on shore. On setting foot on the island they

discovered that their TXOK licence had been changed to FT5XM. But they managed, somehow, to get "on the air", at least symbolically. Half of the team made a one- each single QSO with the assistance of the commercial station used in the Post Office. All contacts were made with the same station, ZS6SOA.

## Heard Island VK0KIR

The final statistics from Heard Island indicate that the total contacts on CW (45,536) far outweighed the total number of SSB contacts (33,081).

The QSL route for the expedition is: INDEXA, c/o John Parrott W4FRU, PO Box 5127, Suffolk, VA 23435 USA, with the usual reply envelope and return postage (and a donation if you so wish). No QSL requests by e-mail please.

The cards will be mailed out in the order received and mailing will begin as soon as the logs and cards are received. Please send all Heard Island QSL cards in one envelope, all Reunion QSL cards in another envelope, and all QSL cards for the maritime mobile operation in a third envelope, otherwise delay will occur.

John has plenty of local help with this activity. Incidentally, the name INDEXA, mentioned at the heading of the QSL address, stands for The International DX Association Inc, PO Box 607, Rock Hill, SC 29731, USA. It is a non-profit organisation for the enhancement of amateur radio and is an active supporter of many DXpeditions.

## Huang Yan Dao - BS7H

The Chinese Radio Sports Association (CRSA) has announced plans for the third DXpedition to Huang Yan Dao, also known



Mike KOAJ busy with the key on Heard Island.





**Remains of the old ANARE station on Heard Island.**

as Scarborough Reef. A multi-national team, led by BZ1OK and JA1BK, will sail from Guangzhou (Canton) on 28 April and is expected to commence a one-week operation on Wednesday, 30 April.

The primary goal of the expedition is to provide at least one QSO with as many individual DXers as possible. A secondary goal will be to provide contacts on additional bands and modes, including 160 to 6 metres, CW, SSB, satellite and RTTY with four stations on the air.

Operators will be BZ1OK, JA1BK, JA1RU, N7NG, W6EU, W6RGG and maybe others. The QSL manager is JA1BK. There will be an "operational support network" consisting of several stations through the world which will be in constant communication with the operating team (*shades of the Heard Island "pilot" system? VK2PS*). The DXpedition enjoys strong support from the PRC government.

#### **Pratas Island - BV9**

Joe BV/ND1AT in Taiwan, ROC, reported that he had a long discussion with several Taiwanese hams during the Chinese Lunar New Year holiday and was told that the application for the upcoming DXpedition to Pratas Island, one of the newest DXCC countries, was rejected. Citing military preparedness, the officials rejected the application. Pratas is one of the Republic of China strongholds and it is primarily an island of military installations and not for civilian use.

#### **Bouvet Island - 3Y**

The South Sandwich Island Arctic DX Group reported that the 1997/98 expedition will depart Capetown in January 1998 on the

67 metre long vessel "Afrique du Sud", and will commence activity for 12 days starting 5 February 1998. Tony WA4JQS and Barry ZS1FJ are planning the expedition which will cost \$US100,000.

In the meantime it was reported that Kaare LA2GV was active for three hours during the morning of 22 February as 3Y2GV on 18,090 kHz working Europe. Kaare (who was a member of the first Peter 1 DXpedition) was travelling on a Norwegian Antarctic Ship and was unable to give any advance warning of his activity.

#### **Groote Eylandt - VK8NGE**

Stuart VK8NSB is returning to his old hunting ground of Groote Eylandt island (OC-141) and will be active as VK8NGE from 21 March to 6 April on 80, 15 and 10 metres CW and/or SSB. The island lies in the Gulf of Carpentaria (13° 58' S and 136° 38' E). QSL via Bill Homer VK4FW.

#### **St Peter Island - VK5ISL**

St Peter Island is located at 32° 19' S and 133° 34' E, off the mainland of South Australia, approximately 14 km from the township of Ceduna. The island forms part of the Nuyts Archipelago in the Great Australian Bight.

Malcolm VK6LC, the well known IOTA DXpeditioner, had been asked by Tony VK5WC, Neville VK5WG, Terry VK5LED and Paul VK5MAP to organise, manage and train the group by practical experience for future IOTA DXpeditions. They landed on St Peter on 27 March and departed on 1 April.

Government landing and transmitting licence was obtained and the DXpedition registered with the RSGB and the IOTA

Committee as a new reference number in their program. The operating frequencies were 3605 for VK/ZL, 3798 for others, 7045 (NA 7178 listening), 14260 and 21260 kHz. Two stations were used. A variety of wire and multiband antennas were at hand in addition to the Australian ATN 4 Square vertical array antennas for the 40 and 20 m bands.

Special support was given by the IOTA Convention in 1996 and by the members of the Diamond DX Club of Italy. QSL direct with return postage and envelope to: Gianni Varetto 1IHYW, PO Box 1, 10060 Pancalieri, Italy.

#### **International Marconi Day - VK2IMD**

This is now, if my mathematics are correct, the tenth year that amateur radio operators have activated special call signs or special suffixes to celebrate the birthday of Marconi which is 25 April. VK2IMD will be on the air for 24 hours on 19 April, with some 58 other amateur radio stations all around the world, to celebrate the event. The activity will start at 0001 UTC on 19 April on all bands, SSB, CW, FM and packet. QSL, with return envelope and postage, to WAHRA (Wahroonga Amateur Historical Radio Association), PO Box 600, Wahroonga NSW 2076.

#### **Future DX Activity**

\* Mark 9X4WW is now active from Rwanda until August 1997. He is allowed to operate only on the allocated frequency of 14118 kHz. QSL via ON5NT.

\* Tom VK0TS from Macquarie Island showed up a few times on 40 metres during February and March having QSOs mainly with his VK1 friends. He expects to be more active from April onwards. QSL via VK1AUS, S N Trotter, PO Box 2063, Kamah Village, ACT 2902.

\* Ron ZL1AMO intends to go to Banah Island T33 in April 1997.

\* Chris A71CW, who made over 100,000 contacts from Qatar, will move now to Oman, A4. No call sign has yet been allocated.

\* Dominique F5RYC will be active in the near future as J28YC from Djibuti. QSL via F6EJ.

\* C6A/DL3ABL and C6A/DL6MHW will be looking for contacts from the Bahamas on CW/SSB on all HF bands. QSL via DL3ABL.

\* Harold DF2WO will operate from Burkina Faso, from 28 March to 14 April, as XT2AW. CW/SSB on all bands. QSL to home call.

\* Contrary to rumours, there will be no activity from Aves Island YV0 this year.

\* Mano HB9BRM is now in Sri Lanka and is using the call sign 4S7BRG.

\* Frank 9Q5PA is an employee of the American Embassy and will be in Zaire for the next 15 months. QSL to Frank Patris, C/o America Embassy, Kinshasa, Unit 31550, APO 09828, USA.

\* Eric FT5ZG has been active on Amsterdam Island since 13 January. CW only on 40 metres at 1730 UTC. QSL via F5RQQ.

\* 9U5CW and 9U5DX will use the special call 9U5T for all the major contests in 1997. QSL via F2VX. Please enclose a large envelope.

\* Gerard F2JD, has been issued with a Panamanian callsign, HP1XBL. He is active from 40 to 15 metres, including the WARC bands. QSL via F6AJA.

\* JG8NQJ/D1 will be on the Island of Minami-Torishima until 23 April. He operates on 40 to 10 metres. QSL via Susumu Sanada JA8CJY, 5-4 Shin-Ei, Toyohira, Sapporo 004, Japan.

\* XU2FB is Bob KE2FB in Cambodia. He works at the US Embassy in Phnom Penh. QSL via N4JR.

\* Sam V63KU is active almost daily between 14175 and 14200 kHz. QSL via JA6NL, or via the bureau, or to Box 1679, Truk Lagoon, Micronesia.

\* Rich KP8UM will take part from the US Virgin Islands in the CQ WPX SSB contest on 26 March to 12 April, and outside the contest, with the call KP2/KP8UM. QSL direct (new address) to Richmond Blake, Rt 3, Box 234-A, Bridgeport, WV 26330, USA.

\* Stromboli Island (EU-017) will be activated by IT9TZZ and IT9NGN from 30 May to 6 June.

\* Lubang Island (OC-126) will be on the air with the help of DU1IXY, DU3NHK, DU3BAA and JH0HZE/DU1 from 13 April to 20 April.

## Interesting QSOs and QSL Information

\* VK0TS - Tom - 7070 - 1153 - Jan (E). QSL via VK1AUS - S N Trotter, PO Box 2063, Kambah Village, ACT 2902.

\* HK3AO - Luis - 14164 - SSB - 0612 - Jan (E). QSL to Luis Eduardo Caicedo, PO Box 54, Bogota, Colombia, South America.

\* VK9XZ/P Cocos Keeling - Bill - 14260 - SSB - 0650 - Jan (E). QSL via Bill Billington VK6UE, 30 Bindaree Tce, Kingsley, WA 6026.

\* ET3BN - Peter - 14025 - CW - 0601 - Feb (E). QSL to Dr Peter Hafertorn, PO Box 150194, Addis Ababa, Ethiopia, Africa.

\* H44FN - Hari - 7011 - CW - 0652 - Feb (E). QSL via Bela Mihaly HA8FW, Csongradi Sgt 122/A, 4/9, H-6724, Szeged, Hungary.

\* S21XX - 14025 - CW - 1044 - Feb (E). QSL via Hannes Schmidt DL3NEO, Hans Sachs Str 24, D-91207, Lauf, Germany.

\* CP6ND - Arturo - SSB - 14195 - 0636 - Feb (E). QSL to Luis Arturo Resales King, PO Box 504, Santa Cruz, Bolivia, South America.

\* ZL7ZB - Lothar - 14197 - SSB - 0556 - Feb (E). QSL via Lothar Grotehusmann DJ4ZB, Quakerstr 35, D-13403, Berlin, Germany.

\* 9U5CW - Alfredo - 14021 - CW - 0642 - Feb (E). QSL via Gerard Debelles F2VX, 4 Le Haut d'Yvrac, F-33370, Tresses, France.

\* XX9AU - Cheang - 14180 - SSB - 1010 - Feb (E). QSL to PO Box 6018, Macau, Asia.

\* P29VXX - Falk - 14195 - SSB - 1017 - Feb (E). QSL via Juergen Maerz DL7UFN, Glambeker Ring 7, D-12679, Berlin-Marzahn.

\* 4L5A - 14160 - SSB - 0518 - Feb (E). QSL via Mario Gava IK3HHX, Via S Lorenzo 29, I-31010, Mareno, Pieve, Italy.

## From Here and There and Everywhere

\* Rudi, a well-known German DXer, decided to manage his own QSLing. He has moved lately. His new address is Rudolf Klos DK7PE, In Kirschgarten 17, 55263 Wackernheim, Germany.

\* HG5HRJ is a special event station, operational during 1997, celebrating the 150th anniversary of the Hungarian

Railways. QSL manager is HA5BSW.

\* In my column in the February 1997 issue, I mentioned a new Antarctic Base with the callsign KC4AAD. The comment was made that this is a new base and has been set up for three years. The background about this station came a few weeks later in a short newspaper article. There is now a new automated astronomical site testing laboratory, a joint Australian-United States project in Antarctica, which will operate for two years measuring the brightness of the polar sky to confirm that Antarctica is the best place on Earth to study the stars. If the observation goes smoothly, the Observatory (AASSTO) will be redeployed in 1999 to "Dome C" about 2000 kilometres from the South Pole and one of the coldest of the high spots (2385 metres above sea level) in Antarctica.

\* Alan VK8AV is one of the few VK DXers who have contacted Heard Island nine times, on seven bands, on CW and SSB, among them the much coveted 160 m band.

\* Toly 3W5RS is QSLing via Box 303, Vung Tau, Vietnam.

\* The Oceania DX Group was active from 15 to 22 March 1997 with the interesting special call of V12IDS. They were active on behalf of the Down Syndrome Association of Queensland Inc, a charity organisation raising money by issuing a special award at the cost of \$US5.00 or 10 IRCs. The "21" in the callsign is very significant as it is this chromosome which is often the cause of the disability. Award Manager is the ODXG, PO Box 929, Gympie, QLD 4570.

\* Lothar DJ4ZB was active as ZL7ZB from the Hotel Chatham on Chatham Island with a 20 m sloper antenna from 12 February until 14 March.

\* The three operators of S21XX made 925 QSOs on 160 m, 2,550 on 80 m, and 2,900 on 40 m. Total number of contacts was 12,234.

\* LM1SKI, was a special event station in Trondheim, Norway during the Nordic Ski World Championships from 20 February to 2 March. This was the first time that Norway used the LM prefix for the amateur service. QSL via LA1K.

\* It has been reported that there is a very severe "interference" problem with the Armenian mail system.

\* 3Z2GD, a special Polish call, celebrated the 100th anniversary of the City of Gdansk. QSL via SP2FOV.

\* V13GP was active again as a special event station early in March celebrating the Melbourne Grand Prix. QSL via VK3ER.

\* Kuwait celebrated its National Liberation Day on 25 and 26 February. 9K2RA/NLD and Abdul 9K2GS/NLD were active. Abdul's card goes via WB6JMS.

## QSP News

### Special Event Station GB70GBH

Dr Ken Jones G3RRN of Lincoln, England has arranged for the above special event call sign to commemorate the 70th anniversary of the inauguration of the Lincolnshire - Australia Beam Wireless Service on 8 April 1927.

A team of local amateurs will operate a

station with the call sign GB70GBH from the original transmitting site at Tetney, near Grimsby, Lincolnshire on Saturday 5 and Sunday 6 April, and on 8 April. The intention is to erect a rhombic antenna, and they will be looking for contacts with VK and ZL on 14 MHz and 10.1 MHz.

(News item from Alan Cook VK3AUC)

## Education Notes

Brenda M Edmonds VK3KT\* Federal Education Coordinator

\* It was reported from Sweden that the Swedish authorities are lowering the CW requirement of the amateur test from 12 to 5 wpm. It used to be 16 wpm until just a few years ago.

\* This year the UK short contest callsign will have the number 7 for 1997. Examples: GM7X Scotland, G7A England, GU7D Guernsey, MM7Z Scotland and M17S Northern Ireland. Do not forget the new prefixes: GM=GM and MM, GW=GW and MW, GI=GI and MI, etc

\* The Brazil net is active on 14240 kHz on Monday to Friday at around 0900 UTC, and Sundays on 14222 kHz at 1800 UTC.

\* R1ANL at Novolazarevskaya Base, Antarctica should be active by now. Licence was issued on 1 January and is valid for 12 months.

\* After the successful 701A activity in Yemen, the Yemeni Ministry of Communication gave permission to Franz DJ9ZB to return to the country in the northern spring to operate in all modes. INDEXA has shipped the equipment and beams for 10 to 40 metres, including WARC antennas, for the 1997 operation. The equipment used in the December 1996 activity was donated to the Yemeni MOC.

\* John PA3CXC has moved from Southern Sudan (ST0) for six months to Rwanda (9X5).

\* GB100LP and GB100FI will be active on all modes on all bands from 10 to 16 MHz to celebrate the 100th anniversary of Marconi making the first ever QSO across water. QSL via GW0ANA

\* The correct QSL address of R1ANT (change of operator in October to Yuri) is UA1GO, PO Box 600, St Petersburg 198206, Russia.

\* The QSL route for T20AA is now KD4XN

### QSLs Received

3DA0DX (3 m ZS6BRZ), LY5A (3 m - LY2ZZ), SU7Y (3 m - JG3UPM), ZF0F (3 m - PY5EG), FT5XL (4 m F5NZO), VK8TI (30 m GARG, Box 1153, Nhulunbuy)

### Thank You

Many thanks to all those who supply me with news and other information. Special thanks to VK2XH, VK2KFU, VK2JDM, VK2TJF, VK4FW, VK6LC, VK6VS, VK8NSB, W1A, LA0370, HA5BSW, ARRL, *The Sydney Morning Herald*, ODXG, INDEXA, IFS Radio and Space Services, Dr R Thompson, *QRZ DX*, *The DX News Sheet*, *The 59(9) DX Report*, *The 425 DX News*, and the *GOLIST QSL Managers list*.

\*PO Box 93 Dural NSW 2158

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I have recently looked at the statistics relating to examinations run by WIA Exam Service, and been shocked to find how the demand for examinations has dropped over the last few years.

In 1992, the first year for which the WIA was the only supplier, there were well over 2000 candidates and nearly 500 events. In 1995, although there were still over 400 events, there were less than 1200 candidates. The trend has continued into 1996. Admittedly, in some areas the pass rates have increased slightly which may mean that there are fewer repeat candidates. But that does not affect the conclusion that we are attracting new recruits at an ever-decreasing rate.

It is time to have a good hard look at where we expect to be in the next century. Will amateur radio as a hobby be around into the next century? Will the WIA make it to its centenary?

Certainly, as our numbers diminish, our voice in both national and international spheres carries far less weight. In many other countries amateur radio is growing in both numbers and influence. What can we do to preserve our privileges for the next generation?

A profile of the amateur population shows that the average age is increasing. Most of our new recruits are of middle age or older. These newcomers bring a wealth of general experience to the hobby. Many play a valuable part in the management of clubs or

Divisions. But for continued survival we need to recruit from the younger groups.

I have written previously about ICARE, the International Council for Amateur Radio in Education which was formed in 1995 to encourage the use of amateur radio in schools and Universities throughout the world. I have just received the information about ICARE's third annual conference to be held in July 1997. This year it is to be held in Durban, South Africa, "to encourage attendance by licensed teachers in the southern hemisphere".

Although it is unlikely that I will be able to attend, I have the details if anyone else is interested, and I would be very pleased to be able to submit a report on the activities within schools and universities in Australia. I appeal for information from any readers who are using radio in these situations.

If European, American and African schools have shown an active interest in amateur radio, why is it so hard to encourage Australian schools to see the potential value of this hobby?

I can provide some help with publicity materials, but would welcome ideas on how to reach educational establishments and teachers. This may be one way to increase our recruiting of younger members, and we need to explore all possibilities.

\*PO Box 445, Blackburn VIC 3130

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## Over to You - Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

### Admission of Guilt?

On a recent morning, in the phone portion of the 7 MHz band, I heard a well-known VK3 amateur.

He was working a European station and, when asked by the other party what antenna he was using and what power, replied that his antenna was an inverted Vee and that he was using 500 watts. Perhaps I have misread the regulations in thinking that the VK legal limit is 400 watts PEP. As inverted Vee antennas

are not usually regarded as gain antennas, I do not imagine that he was referring to ERP.

I am quite sure that there are other VK amateurs who use powers in excess of the legal limit, but I doubt that very many of them would be so imprudent as to admit it on air!

Len Heal VK4BQL  
91 Goman Street  
Sunnybank Hills  
QLD 4109

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# Novice Notes

Peter Parker VK1PK\*

## Simple Test Equipment to Build

This month we plug in our soldering irons and put together some pieces of basic test equipment. Though inexpensive, the projects described will prove useful in the radio shack. Any one of them can be assembled in an afternoon. They are described in order of complexity, so that the reader can find a project suitable for their expertise. Extensive constructional information is not provided; refer to April 1996 *Novice Notes* for advice on obtaining components, construction techniques and sources of information.

### Field Strength Meter

A field strength meter is perhaps the simplest piece of RF test equipment that can be built. Used for checking transmitters, antenna experimentation, and testing RF oscillators, field strength meters provide an indication of the presence of RF energy. They are not frequency sensitive and are useful where indication of a change in level is more important than the actual strength of the signal indicated.

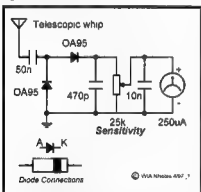


Fig 1 - Schematic diagram of a field strength meter.

Figure 1 shows a schematic of an RF field strength meter. Like a crystal set, it requires no power source. However, unlike a crystal set, the meter has no tuned circuit. It responds to signals of any frequency.

The meter works by converting any RF signal present at the antenna to a DC voltage. This voltage drives a meter movement to give an indication of relative RF. The meter includes a control to reduce its sensitivity where required.

Because it uses few parts, a printed circuit board is not necessary; components can simply be soldered to one another. However, a box is desirable for operating convenience.

The case and aerial from a discarded toy walkie-talkie were used in the prototype, although any small plastic case will suffice. The meter movement need not be large; we are only detecting the presence of RF, and not making precise measurements. A meter from an old radio or tape recorder should work fine.

The diodes can be any germanium type, the actual part number is not important. Germanium diodes can be recognised by their 6 mm-long clear glass case with two coloured bands towards the cathode end. None of the component values shown is critical; a 50 percent variation would have little effect on circuit operation.

To test the operation of the meter, a transmitter is required to provide a source of RF. Placing the field strength meter's extended antenna near a handheld VHF rig should produce an indication on the meter, assuming that the sensitivity control has been set to maximum. No indication means that the meter is not working.

Common construction errors include connecting the diodes or the meter incorrectly and using silicon diodes in place of the germanium diodes specified. In this case, the meter will still work, but with reduced sensitivity. The earth wire is optional; when working with low-powered oscillators, it is useful to clip it to ground (of the circuit under test) to ensure a better indication on the meter.

Those without a transmitter can use an RF signal generator or crystal oscillator (such as that described later) for testing purposes. In this case, place the meter's antenna directly on the output terminal to verify operation. However, only attempt this with transistorised circuitry; component ratings and safety considerations make the meter

described here unsuitable for poking around valve equipment.

The field strength meter is a useful instrument in its own right, but it can be made more versatile. Modifications include adding an amplifier (for greater sensitivity), including a tuned circuit (so it only detects signals in a particular band), or converting it into an RF wattmeter and dummy load. Circuits for such instruments are found in the standard handbooks.

### Crystal Checker

Figure 2 shows the circuit of a simple crystal checker. It switches on a light emitting diode (LED) if the crystal is working.

The crystal under test is placed in an oscillator circuit. If it is working, an RF voltage will be present at the collector. This is rectified (converted to DC) and made to drive a transistor switch. Applying current to the base causes current to be drawn through the collector, thus lighting the LED.

If an indication of frequency is required, simply use a general coverage receiver to locate the crystal oscillator's output. Note, however, that when testing overtone crystals (mostly those above 20 MHz), the output will be on the crystal's fundamental frequency, and not the frequency marked on the crystal's case. Fundamental frequencies are approximately one-third, one-fifth or one-seventh the overtone frequency, depending on the cut of the crystal.

The circuit may be built on a small piece of matrix board and housed in a plastic box. Alternatively, a case made from scrap printed circuit board material may be used. Either a selection of crystal sockets or two leads with crocodile clips will make it easier to test many crystals quickly. The RF choke is ten turns of very thin insulated wire (such as from receiver IF transformers) passed through a cylindrical ferrite bead. Its value does not seem to be particularly critical, and a commercially-available choke could probably be substituted.

The circuit can be tested by connecting a

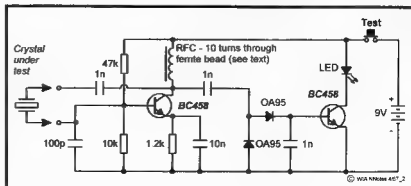


Fig 2 - Schematic diagram of a crystal checker.

crystal known to work, and checking for any indication on the LED. A shortwave transistor radio tuned near the crystal's fundamental frequency can be used to verify the oscillator stage's operation. Note, however, that this circuit may be unreliable for crystals under 3 MHz, and some experimentation with oscillator component values may be required.

The crystal checker also tests ceramic resonators. Other applications include use as a marker generator for homebrew HF receivers (use a 3.58 MHz crystal) and as a test oscillator for aligning equipment.

### Capacitance Meter

This project is more complex than the others described earlier. However, when finished, you will have an instrument capable of measuring all but the largest capacitors used in radio circuits. Unlike variable resistors, most variable capacitors are not marked with their values. As well, the markings of capacitors from salvaged equipment often rub off. By being able to measure these unmarked components, this project will prove useful to the constructor, vintage radio enthusiast or antenna experimenter.

The common 555 timer IC forms the heart of the circuit (Figure 3). Its function is to charge the unknown capacitor ( $C_x$ ) to a fixed voltage. The capacitor is then discharged into the meter circuit. The meter measures the current being drawn through the 47 ohm resistor. The 555 repeats the process several times a second, so that the meter needle remains steady.

The deflection on the meter is directly proportional to the value of the unknown

## Novice Plus

**Helping you get more from amateur radio**

### Soldering without an iron

• Did you know that antenna wires should be soldered (not just twisted) to ensure a good connection?

There is a way to solder two pieces of wire together outside without a soldering iron. After making sure that the conductors are clean, twist the wires together. Then wind a piece of solder around the connection and wrap a piece of aluminum foil around the joint. Hold a candle or match under the foil. The solder should melt, properly connecting the wires. Perform this operation with care to prevent being splattered with molten solder. After allowing time for the joint to cool, unwrap the foil and inspect the connection.

### Using small drills in standard chucks

\* Those who only occasionally etch their own printed circuit boards may not be able to justify the purchase of a special drill for use in PC board work. However, some standard drill chucks do not adjust right down to take the 1 mm diameter drill bits used.

To cure this, wrap a piece of thin solder around the end of the drill bit that fits into the chuck. Then tighten the chuck to properly grip the bit. This method can also be used to make use of snapped drill bits.

capacitor. This means that the scale is linear, like the voltage and current ranges on an analogue multimeter.

The meter has five ranges, from 100 pF to 1  $\mu$ F (1000 n), selected by a five-position two-pole switch. In addition, there is a  $\times 10$  switch for measuring higher values and a divide-by-two facility to allow a better indication on the meter where the capacitor being measured is just above the top value in each range.

Component values are critical. For best accuracy, it is desirable that the nine resistors wired to the range switch have a 2% tolerance. If OA47 diodes are not available, try OA91 or OA95 germanium diodes instead.

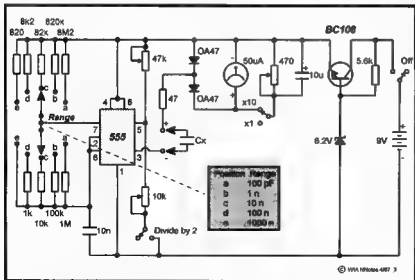
Construct the meter in a plastic box, one

that is about the size of your multimeter, but deeper, is ideal. The meter movement should be as large as your budget allows; you will be using it to indicate exact values. A round 70-mm-diameter movement salvaged from a piece of electronic equipment was used in the prototype. The meter you buy will have a scale of 0 to 50 microamps. This scale needs to be converted to read 0 to 100 (ie 20, 40, 60, 80, 100 instead of 10, 20, 30, 40, 50). Use of white correction fluid or small pieces of paper will help here.

The components can be mounted on a piece of matrix board or printed circuit board. Use a socket for the IC should replacement ever be needed. Keep wires short to minimise stray capacitance; stray capacitance reduces accuracy.

Calibrating the completed meter can be done in conjunction with a ready-built capacitance meter. Failing this, a selection of capacitors of known value, as measured on a laboratory meter, could be used. If neither of these options are available, simply buy several capacitors of the same value and use the one which is nearest the average as your standard reference. Use several standards to verify accuracy on all ranges.

To calibrate, disable both the  $\times 10$  and divide-by-two functions (ie both switches open). Then connect one of your reference capacitors and switch to an appropriate range. Vary the setting of the 47 k trimpot until the meter is reading the exact value of the capacitor. Then switch in the divide-by-two function. This should change the reading on the meter. Adjust the 10 k trimpot so that the needle shows exactly twice the original reading. For example, if you used a 10 nF reference, and the meter read 10 on the 100 nF range, it should now read 20. Now switch out the divide-by-two function.



**Fig 3 - Schematic diagram of a capacitance meter.**

If you are not doing so already, change to a reference with a value equal to one of the ranges (eg 1 nF, 10 nF, 100 nF etc). Switch to the range equal to that value (ie the meter reads full-scale (100) when that capacitor is being measured. Switching in the x10 function should cause the meter indication to drop significantly. Adjust the 470 ohm trimpot so that the meter reads 10. Move down one range (eg from 10 nF to 1 nF). The meter should read 100 again. If it does not, vary the 470 ohm trimpot until it does. That

completes the calibration of the capacitance meter. Now try measuring other components to confirm that the measurements are reasonable. With care, an accuracy of five percent or better should be possible on most ranges.

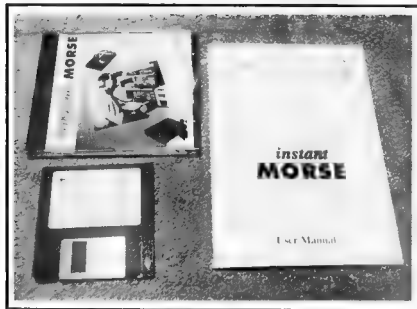
#### REFERENCE

Hawker, P *Amateur Radio Techniques*, Seventh Edition, RSGB, 1980.

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VK1PK @ VK1KCM.ACT.AUS.OZ  
parkerp@pcug.org.au

## Pounding Brass

Stephen P Smith VK2SPS\*



The Radio Society of Great Britain has just recently released a new Morse teaching program, which is available on CD-ROM, entitled "Instant Morse".

A few weeks ago, Daycom Communications Pty Ltd in Melbourne released the above program. It is currently selling for \$99.00, which is pretty good value when you consider the amount of information contained on the disk. The program consists of a six page manual containing a basic introduction to Instant Morse, installation procedure, trouble shooting guide, CD-ROM disk and a 3.5 inch backup disk along with registration material.

System Requirements are: 80386 IBM or compatible PC, Windows 3.1 or later, 4 MB RAM, 256 Colour VGA monitor, Sound

Blaster or compatible sound card, mouse, and CD-ROM drive.

The loading process took me about 10 minutes, following the on-screen instructions. Once loaded you are presented with a number of icons under the main heading of Instant Morse. The icons are: Support, Instant Morse, Academy, CW Tutor, MSE Tutor, and Super Morse. The last four programs are shareware.

Due to the amount of information contained I will concentrate mainly on the Instant Morse icon and review the others at a later date. When the Instant Morse icon is initiated, you are confronted by a full screen of Samuel F B Morse, along with a short introductory message. About a third of the way down the screen you will also see two

flags, the Union Jack and the American Stars and Stripes. Depending upon which one you initiate, you will be introduced to the Morse scene of that particular country. Clicking on to the Union Jack brings you to the Main Menu of Instant Morse.

Within this menu we have a number of sub-menu headings, Morse History, Learn Morse, After Instant Morse, and About the Morse Test. Each of these sub-menu headings is further sub-divided, depending upon which one you chose.

Lets take Morse History. When initiated, you are introduced to a screen full of Morse related pictures, seven in all, covering: History of Signalling, Samuel Morse, Original Idea, Changes and Progress, Amateur Interest, War, and Today's Usage. Each subject gives a short history relating to that period of time. Some of the subjects are accompanied by sound (if you have speakers fitted to your PC). To get back to the Main Menu you click on End.

This time we will initiate Learn Morse from the Main Menu. Here we are introduced to two sub-groups, Morse Fundamentals, and Learn Morse. Morse Fundamentals is further sub-divided to cover Spacing, Dot/Dash Radio, and Dits and Dahs. A full explanation is given of each of these by clicking on the appropriate group.

When initiated, Learn Morse displays three boxes which are Learn Letters, Learn Numbers and Miscellaneous. Taking Learn Letters as an example, a click on this box brings up a clear screen with two new boxes, one to return you to the Main Menu and the other to start the process. Click on Learn and off we go.

The letters are presented to you one at a time in random order. The screen only displays three letters and each letter is initiated one at a time by clicking on the Learn box. Take the letter "D" as an example. When the letter is displayed a short message about that letter is played through your speakers followed by the Morse sound for that letter, which is only sent once. When the Morse sound has finished you click on the Learn box and the process is repeated for two other random letters.

At the completion of these three letters, a new box is displayed, this being Quiz Me. By clicking on this box, the three previous letters learned are repeated but with no sound this time. You use your mouse to click on the dit or dah box by putting in the correct dit or dah for that letter. This will determine if you move on to the next letter to learn. It is quite an interesting exercise.

Learn Numbers and Miscellaneous follow similar guide lines. You can return to the Main Menu by clicking on return.

Looking at **After Instant Morse** from the Main Menu again, this is further sub-divided into three groups: **Consolidation, Practice, and Technicalities**.

Practice covers such things as personal tuition over the air services (similar to our WIA Morse broadcasts), bundled software and Electronic Tutors.

I found **Technicalities** to be very interesting as pictures tell a thousand words. It is broken into two sub-groups, being: **How to Operate a Morse Key**, and **Correcting Errors**.

**How to Operate a Morse Key** is broken down into the following categories:

**Stance:**

1. That's the way to do it
  2. Leaning too far forward
  3. Elbow too high
  4. Seat too low
  5. Seat too high
- Using the Key:**
1. Gently does it
  2. Vice-like grip
  3. The mobile key
  4. Tension too high
  5. Gap too wide
  6. The slapper

For example, clicking on **Seat too High** under the **Stance** heading, will display an operator about 1/3 the size of the screen incorrectly operating a pump key due to his seat being incorrectly positioned in relation to the key and table. Many of the other sub-groups under the **Stance** and **Using the Key** headings also use sound and motion (multimedia) in the manipulation of the key; quite fascinating to watch.

The last group under menu is **The Morse Test**. Like the others, it is further sub-divided into the following groups.

1. What you need to know
2. How to apply for the test
3. Where to take the test

These sub-groups cover the British examination system.

I have only covered a small portion of the program, and haven't looked at the American side, nor the four Shareware programs. As I mentioned earlier, I will report my findings on these at a later date. In any case, I can highly recommend this **Instant Morse** program to anyone interested in Morse code. Whether you are a beginner or an advanced operator, there is something there for everyone.

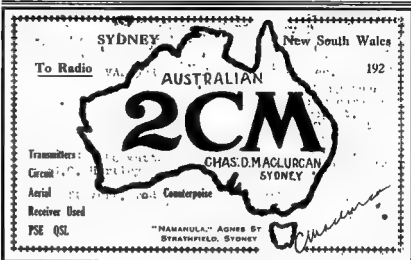
Well done RSGB for an outstanding program

Next month, Operating Protocol, Sitting for an Examination, and where to buy a good Morse key

\*PO Box 361, Mona Vale NSW 2103

## QSLs from the WIA Collection

Ken Matchett VK3TL \* Honorary Curator WIA QSL Collection

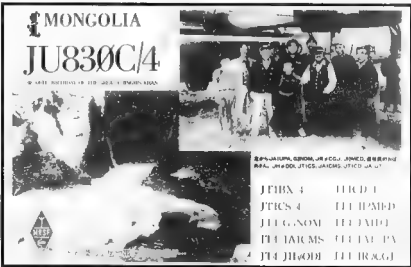


### 2CM

This QSL, dated 10 December 1925, is from Chas D MacLurcan, one of Australia's greatest wireless pioneers. Becoming interested in radio a few years before World War I, he became well-known to thousands of radio amateurs and listeners as a broadcaster of both speech and music on Sunday evenings. On this QSL he has typed "Many

thanks for your card and report. Transmit Sundays 36 metres". He also gives further details: "250 watts transmitter, S C Hartley. Aerial: 35 ft. vert rod. Counterpoise: Earth".

An interesting account of the life of this famous radio experimentalist can be found in the *Electronics Australia* 1994 publication, *Australia's Radio Pioneers* by Neville Williams.



### JU830C/4

Operating from the Gobi desert in Mongolia, the Mongolian Radio Sports Federation promoted a special operation from 3 July to 6 July 1992 in celebration of the 830th birthday of Chungghis Khan. It was this leader who welded together many of the

Mongol tribes into a powerful fighting force which, under him, invaded China and penetrated as far west as the Caucasus. The title "Chinghis" (Genghis) Khan may be translated as "Universal Leader".

# ANTIGUA ISLAND West Indies

# V2A

St. John's Cathedral  
as viewed from Newgate St.

distinguishing letter eg VP2A (Antigua), VP2K (St Kitts).

On 1 November 1981 the VP2A call was replaced by V2, following the country's independence after nearly 350 years of colonial rule.

## Thanks

The WIA (Federal) would like to thank the following for their kind donation of QSLs to the National Collection: Alf VK3CAG, Bill VK2WS, and Dexter W4KM. Also the family and friends of the following SKs: Bill Thompson VK2AHT (courtesy of Bill VK2XT), and Harry Caldecott VK2DA.

## Writing an Historical Article for Amateur Radio

If you are writing an article for this periodical which deals with amateur radio stations and operators of the past, perhaps your article can be enhanced by the inclusion of a photograph showing the station's QSL card. The National QSL collection (administered by the Federal Office) would probably be able to assist. Please contact the Hon Curator, Ken Matchett VK3TL, by phoning (03) 9728-5350.

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Tel (03) 9728 5350

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## V2A

Last year we featured a QSL card with no fewer than nine letters and numbers. The QSL featured here from Antigua is in bold contrast. It was sent on the occasion of the 1985 CQ Worldwide CW contest, the operation being sponsored by the Southwest Ohio DX Association.

The single letter call-sign suffix is still fairly uncommon, those in Australia being held by special experimental (amateur) stations, although world-wide it has been used for special occasions. Before World War 2, several islands of the Caribbean shared the VP2 (Windward Islands) prefix but post-war DX-lists differentiated these with a

## Repeater Link

Will McGhie VK6UU\*

### International HF Beacon

What is an article about the International HF Beacon to do with voice repeaters, I hear you say? Well, not a lot, but the beacon is to be installed at one of our repeater sites close to Perth and its technical nature, I hope, will make for interesting reading.

### Photo

Firstly, the accompanying photo. I have not seen the final result as printed in *Amateur Radio*, but the quality, at best, will only be fair. The reason for this is due to the process of how the photo was produced. The beacon equipment turned up at my place and I used my domestic video camera and a video capture device (Snappy) to capture a picture on the computer. The picture was optimised and captioned. What you can do with pictures on a computer is truly amazing, but there is a limit. If the original picture has limitations, then the final result will also have some limitations.

The resulting digitised picture was then sent to *Amateur Radio* via the Internet for comment. Was it suitable for publication? The picture was printed out on a laser printer



and the result sent to the printers for photographing in order to place in our magazine. Quite a long process and the answer was yes, it was suitable for publication, albeit only fair in quality. What you see is the result. An interesting process and worth the experiment.

### The Beacon Project

Over two years ago, WIA Federal was contacted to find out if it could find a site for an International HF Beacon. The preferred site was Perth, Western Australia, to provide the best interlinking global coverage. The VK6 Division of the WIA agreed to accept



the beacon and manage it. The management, in fact, went to the local repeater club, WARG, as they have a suitable site for the beacon at Roystone, 25 kilometres south-east of Perth.

The site has a large guyed 80 metre mast, but it was decided not to place the HF multiband vertical antenna, a Cushcraft R5, on the mast. Omni-directional radiation from mounting the antenna on this mast would not be possible, and 100 watt CW so close to the on-site buildings could cause a problem. A small, 10 metre mast, some 80 metres from the main mast, is to be installed and the R5 placed on top of this mast. The coax run from the repeater building to the small mast is RG333/U. This 1" (2.5 cm) diameter coax is almost lossless at HF.

### On Test

The beacon arrived and was unpacked. There is not much to the beacon, despite its capabilities. Setting up the beacon was easy. All leads are labelled: I just connected it all up and ran the TS-50S transmitter into a dummy load. As the photo shows there are three units plus the antenna. The units are the GPS receiver, interface unit and the TS-50S. I placed the GPS antenna/receiver outside and applied power to all three units.

An LED on front of the interface unit flashes on for one second and then off for three seconds. This indicates all is working with the GPS receiver, and the GPS receiver is looking for enough satellites to find its position and accurate time reference. The position information is not needed, only the accurate time reference. It took about 10 minutes for the front panel LED to flash one second on, one second off. This indicated that enough GPS satellites had been received for an accurate time reference. The interface unit now knows the exact time and waits for its time slot to key up the beacon.

When the time slot for VK6RBP comes along, the TS-50S is keyed on 14.100 MHz and sends VK6RBP in Morse, followed by a carrier switching from 100 watts to 10 watts to 1 watt to 0.1 watt. The beacon then immediately switches to the next higher band, 18.110 MHz, followed by 21.150 MHz, 24.930 MHz, and finishing on 28.200 MHz.

The complete process of transmitting takes 50 seconds. The remainder of the time, two minutes 20 seconds, the beacon is silent. If you only look at, say, the 20 metre beacon, it transmits every three minutes for 10 seconds. A bit complicated but simple from the users' point of view.

### Interleaved

What is really clever is the way the beacons interleave. If you listen on any of the beacon frequencies when all beacons are running, there is always a beacon on air from

somewhere in the world. As long as you know the time schedule, and hear a beacon, you know propagation is open to that part of the world; or you can read the Morse for the beacon's location.

### Home Page

The Northern California DX Foundation, who paid for the HF beacon, have a home page with more detailed information. It can be found at <http://www.ncdx.org/beacon.htm>. Also have a look at the VK6 home page with information about the Australian beacon at <http://www.faroc.com.au/~vk6wia/hf/bcn.htm>.

### Cost

The entire beacon, including the antenna, was supplied on loan at no cost to the WIA. However, there was a customs import duty of \$436 and an SMA licence cost of \$250. All efforts to have the import duty waived failed, as did argument with the SMA over the \$250 licence charge. Due to the changes in the way beacons and voice repeaters are charged at \$50 per frequency per year, the HF beacon operating on five frequencies results in a total licence cost of five times \$50. These costs have been paid by the Federal WIA.

### Callsign

VK6RBP (Radio Beacon Perth) was not the first choice, VK6B was. However, this callsign was already issued. Other ideas simply showed the rigid nature of callsign licensing in Australia. In the end, only an R call could be issued.

### On Air

By the time you read this, the beacon should be on-air. However, at the time of writing, there has been a delay with the site

owners wanting their legal people to have a look at the proposal. We have been told verbally there are no problems but I guess lawyers have to do something.

### Repeater Beacon Fees

I was at the last Federal WIA conference, held in Sydney during February, and the fees issue was discussed. Much of what was discussed is not for publication but there is progress. The following WIA News release was placed on the packet network. It is not the entire release but is the important bit.

"The WIA has had discussions with the SMA about the basis of beacon and repeater licence fee charging since this was introduced in 1995 with the new amateur licence fees regime. The Institute sought information on how this method of charging was determined under the Radiocommunications Act, the Regulations or any SMA Determinations. SMA Liaison Team investigations over 1995-96 had discovered that there was no clear path arising from the legislation or SMA Determinations which arrived at the instruction in RALI AM2. The Team also discovered that it had apparently been applied differently in different states, and even within states."

There are several anomalies in the licensing system, to say the least. Different regulations exist between voice repeater licensing and digital repeater licensing, and these various regulations are applied differently between states. I've said it before and I say it again, a real mess!

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E-mail: wia@v6le.fairfax.com.au

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## WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 145.650 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5VF	Continuous on 145.650 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 3 wpm to 12 wpm

# Spotlight on SWLing

Robin L. Harwood VK7RH\*

Recently, whilst tuning across 31 metres, I heard Radio Thailand broadcasting in English. As it is many years since I have heard this station, I was pleasantly surprised at the quality and strength of the signal as it formerly was weak and easily buried in the QRM. Presumably it is now using the shared facilities of either the VOA or the BBC, both of which have constructed relay bases in different areas of Thailand. Listen for yourself to HSK9 from Bangkok on 9830 kHz at 1230 to 1259 UTC.

The "Voice of Free China" has been around for decades as well and is based in Taipei, Taiwan. This station has been well heard here, especially on 7130 kHz, and it was one of the first stations who confirmed my reception report when I commenced shortwave listening. The best reception in this area is on 9610 kHz; and is in English between 1200 and 1300 hours UTC.

Although the signal level is good, I find that the presentation and pronunciation is poor. It has been reported that some reorganisation of the external broadcasting structure on Taiwan has taken place with several separate entities being merged into a single organisation. For example, the various networks who mainly broadcast to the Chinese mainland have been merged with the external broadcasting service. It is too early to say what, if any, changes will be made to the programming. The VOFB also is relayed over the American religious broadcaster WYFR in Florida as part of a reciprocal arrangement. WYFR, otherwise known as "Family Radio", is relayed via Taiwan in Chinese and English.

I recently obtained the Klingenfuss Super Frequency List on CD-ROM and have been using it both on broadcasting and utility stations. I have found it very handy to use instead of diving into the World Radio TV Handbook or my Utility Guides. However, it is only as good as the current schedule and no guide, whether electronic or hard copy, can be expected to be 100% accurate. Yet, with the CD-ROM, you can extract information and paste it to your hard disk. There you can edit it, adding updated information on your HDD. You cannot, of course, modify the CD-ROM.

Apparently the CD-ROM complements the Klingenfuss Hard Copy guides, which I did not order. I would rate the Super Frequency List as good. If you are interested in obtaining this I would recommend that you contact the Australian agent, Bob Padula, 404

Mont Albert Road, Surrey Hills, VIC 3127. I am informed that an updated Klingenfuss schedule will be available next month. For more details I recommend that you contact him. Incidentally, my CD-ROM came from Grove Publications in the USA. The price is around \$57 Australian; this will vary with exchange rates.

The future of Radio Australia is still unclear. A Senate Select committee is now reviewing the future of Radio Australia and Television Australia. Media reports say that the committee is hoping to finalise their report by mid-May. Broadcasts from RA are continuing.

Albania is currently in the news following the internal political crisis brought on by the collapse of the domestic economy. I have had requests for Tirana's current frequencies but it is a while since I have heard them. Before the fall of the hardline communist regime led by Enver Hoxha, Radio Tirana was easily heard as it flagrantly operated within our exclusive amateur allocations. For example, they were on 7080 kHz in English in our late afternoons with their hardline Marxist-Leninist stance. They also were on 14320

kHz at 0500 and 1300 broadcasting to China. Apparently the Chinese constructed a shortwave and medium wave site to relay Radio Peking (as it then was called) to Europe. I recollect easily hearing the medium wave signal whilst in Europe in 1979 on a small National pocket transistor. Programming was identical to that on shortwave. The female English announcer was notable in having an Australian accent.

From the CD-ROM, Tirana is currently listed on a variety of frequencies. It is on 5895 kHz between 1200 and 1915. Interestingly, it is shared between Trans World Radio, the US evangelical broadcaster, and Radio Tirana. TWR apparently operates the megawatt MW station in the evening hours and it is heard throughout Europe. The Albanian Radio domestic network is relayed over 6100 kHz between 0300 and 2200 UTC and may be audible here.

Another channel worth keeping an ear to is 7385 kHz where Radio Tirana is transmitted in various European languages from 0600z. No frequencies above 9.7 MHz are listed and it does not broadcast outside of Europe except to North America. However, I have noted some comments in the newsgroups stating Tirana is not being heard there.

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## Update

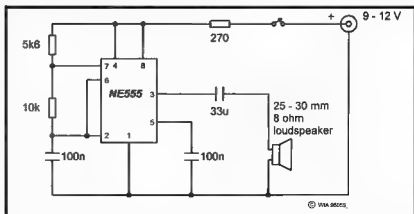
### MorseMouse

The gremlins have been at work again. Figure 1 of Peter Parker VK1PK's interesting little article, which appeared on page 24 of last month's issue of *Amateur Radio*, would have us believe that a special 25-30 ohm loudspeaker was needed. Not so! As the accompanying revised Fig 1 shows, the

caption to the speaker should have read "25-30 mm 8 ohm loudspeaker".

It might be a good idea to correct your copy of the March 1997 issue of *Amateur Radio* now. And why not build a MorseMouse. You could have a lot of fun.

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Revised Fig 1 - MorseMouse schematic.

# VHF/UHF - An Expanding World

Enc Jameson VK5LP\*

All times are UTC.

## Something different

Mark Nicholls VK4RMN sent a fax regarding interesting propagation experienced at 2000 feet on 20 February. Mark is based at Roma in south west Queensland with the Flying Surgeon Service, provided by the Queensland Department of Health to outback Queensland. This is a separate service to that other most worthy institution, the Royal Flying Doctor Service.

Leaving Roma at 2110 and at a height of 2,000 feet ASL (aircraft use imperial measurements), Mark began to receive transmissions on the VHF AM frequency of 126.0 MHz from the Riverina area of southern NSW, with those aircraft being on descent through 5,000 down to 3,000 feet. Signals were judged at 5x9 as the King Radio in the Cessna 421B does not boast an S meter. Copy was available for about thirty minutes until Mark was in the Carnarvon Gorge area at 10,000 feet when signals began to fade out.

Mark said: "I would liked to have called the respective aeroplanes but local traffic on 126 MHz was too busy, so it would not have been the thing to do!"

The distance from Narrandera to Roma is 503 nautical miles or 931.6 km. Nominal power output of aircraft radio is about 15 to 20 watts. The area frequency for the Riverina is also 126 MHz and no relay stations were involved, so it was a direct path.

At home, Mark uses a Yaesu 480-R with an 80 watt linear amplifier to a 13 element ATN Yagi, horizontally polarised. He listens on VHF whenever he can, but says: "We are a long way from anywhere!" Thanks Mark.

## New Zealand

Cliff Betson ZL1MQ summarises the summer DX season as follows: "50 MHz: About 240 contacts to VK all districts except VK8. Double hop contacts on 4/1 with ZL1AKW, ZL1TMF and ZL2WNB to VK6BE, ZL3AAU and ZL3KG to VK6OTZ, VK6YU and VK6AGY. The three stations which worked VK6BE went portable on 4/1 and worked VK1 to 7 inclusive using 60 watts - good coverage for one day.

"Frank ZL2AGI reported 21 VK stations with openings on ten days during January to VK1RX, VK2 to 5 and VK7XR. Others involved were ZL3AAU, ZL3TIC, ZL3TY and ZL4TBN.

"144 MHz. More than 100 contacts to VK2, 3 and 4. ZLs involved were 1TWR, 1AVZ, 1AKW, 1IU, 1UWQ, 1SL, 1WTT,

2TAL, 3TY, 3NE, 3BWT, 3AR, 3NW, 3AIC, 3TIC, 3TCU, 3TJZ, 3TIB and 3DUT.

"432 MHz: Eleven VK contacts reported. 14/11: ZL3NE to VK2BRG, VK2FZ4, VK4JSR, VK4AFL and VK4ZQ. 21/12: ZL1TWR to VK2ZAB, ZL1AVZ to VK4ABW2, VK2BE and VK2ZAB. 22/12: ZL1TWR to VK2ZAB.

"1296 MHz: 22/12: Brian ZL1AVZ to VK2ZAB (59+ in Auckland) and VK2BE. Distance in excess of 2000 km."

## Grid Squares Worked from Europe

VK3OT and VK5LP have been preparing a list of the total contacts made from Australia on six metres to the UK and Europe during Cycle 22. It has become a very interesting exercise and it appears at this stage that more than 2000 contacts were made between 1988 and 1992.

The majority of contacts were made from the north-western area of VK6 (VK6PA and VK6JQ), and Alice Springs (VK8ZLX). On the eastern side of the continent, VK3OT scored as well as anyone. Many contacts were made from VK2 and VK4 and, on a few occasions, from VK5; we lack much of this information, also that from the remainder of VK6.

To gain an overview of how the contacts unfolded, anyone who made contact with the UK and Europe is invited to submit their entries from log books, giving the time in UTC, date, your callsign and grid square, station worked and grid square if known, preferably in that order please. Grid squares to four places are acceptable. If you made only one contact we would be happy to include it.

The method of release of the final results has not yet been determined, as they are primarily designed for research purposes into propagation and spread of contacts. Anyone genuinely interested will eventually be able to obtain a copy. Please send your entries to me (VK5LP), no later than 30 April 1997. You may e-mail, packet, fax or post them to me - see details at end of this column for addresses. A contact phone number could be helpful.

## 50 MHz Country Listing

World Top 20. Updated 7/10/96:  
JA4MBM 158/157, GJ4ICD 157/157,  
PA0HIP 157/156, SVIDH 151/151, JA1BK 151/151, PY5CC 151/150, G3WOS 150/150, PA3BFM 149/145, G4CCZ 147/147, G4IGO 145/143, ON4KST

141/137, G4UPS 141/140, JE1BMJ 140/140, ON4ANT 140/137, SV1EN 138/138, SM7FJE 138/137, SM7AED 138/135, VE1YX 136/136, G0JHC 136/135, JA1VOK 135/135.

Geoff GJ4ICD in Internet *Six News* reports that last January, after 13 years, Chris GM3WOJ received the first 50 MHz DXCC (No 219) for Scotland. Best DX was KG6DX, although his signals were heard in VK7. Chris achieved his DXCC from IO77ws in the north of Scotland which is a long way from eastern VK!

## NSW VHF/UHF DX Group

From Richard VK2ARS: "Charter of the NSW VHF/UHF DX Group (note it's not a club but a group of people with similar interests who get together) is to promote long distance communication without the use of earth-based repeaters. We agree that there is a need for repeaters but not for home-base to home-base use.

"Regular schedules for communications using FM 146.550 occur on Sunday mornings at 11.00 am local. Tuesday activity nights on two metres SSB. Thursday activity nights on 70 cm SSB.

"Since we started the number of active stations in Sydney and NSW has increased by 100% so the chances of a reply when calling CQ has improved remarkably.

"Last year we had some interesting chats and projects, and the following are proposed for this year: All activities to continue with a possible activity night for 23 cm, and 10 GHz towards the end of this year or early next year. Presentation at Wyong of what is required for long distance communications on two metres by Gordon VK2ZAB. Talks: Propagation via aircraft enhancement. Test equipment building and how to use it. Where do you find those illusive parts for that special project? Home made filters and cavity AM17 (ex CAA 2 x 4CX250 amplifier), overview and modifying it for amateur two metre operation."

## General Activities

From Rob VK3DEM - The Demon from Bairnsdale QF32te - reports on summer contacts of interest, including more than 20 contacts to VK7 on 144, 432 and 1296: 7/12: 0500 - 2358 50 MHz ZL2TPY, ZL3s TIC, TIB, TY, NW, ADI, ZL4s DK, TBN, LV, all in the ZL VHF Contest, most signals to 5x9.

23/12: ZL3TIC 144 MHz.  
27/12: 0708 VK2TWR/p and VK2VZ/p Bald Hill QF43gs on 1296 MHz.  
28/12: 0025 VK7XR 144 5x9, 432 5x9, 1296 5x3, 50 5x3; 0301 VK7KAP 1296, 432 and 144 all 5x9; 0455 144 VK2BBF 5x2, VK2ZAB 5x2; 2113 VK2FWB 5x3,

VK1BG 5x2, 2154 432 VK1VP 5x3,  
 4/1: 1008 VK4TN 5x9; 1045-1052  
 VK2FZ/4, VK4s APG, AFL, JSR, DH, LO,  
 ZBH - all on 144 Es.  
 6/1 144 ZL3TY 5x2  
 7/1: 2020 144 VK5NC 5x5, 2057 VK5AKK  
 144 5x2, 432 5x1, 2145 432 VK5NY 5x2.  
 8/1: 0150-0415 50 ZL4TBN, ZL3TLG,  
 VK6KAT, VK6KZ, VK6APZ 5x5-9; 0120  
 VK3TMP 5x5, VK3XPD 5x3, both on 1296.  
 15/1: 2121 144 VK5AKK 5x2; 2340 144  
 VK6KDC (OF85bs) 5x2 2852 km.  
 16/1: 0007 144 VK6KDC 523, 0010 432  
 VK6KDC 5x2 (very happy with that one!),  
 2150 144 VK6WG 5x2.  
 17/1: 2019 1296 VK5NC 5x3 600+ km.

Andrew VK7XR reports good tropo  
 openings across Bass Strait. Most mornings  
 signals are 5x1 to 5x2, but the following list  
 indicates the enhancement mentioned.

05/2: 2100 VK3AFW 5x9 144 and 5x5 on  
 432 VK3ATQ 5x8 50.  
 12/2: 2115 VK3AFW 5x5 144,  
 13/2: 2029 VK3ATQ 5x2 50, 2039 VK3YY  
 5x2 50, 2112 VK3AFW 5x2 144,  
 16/2: 2017 VK5NC 5x1 144, 2033 VK3ATQ  
 5x2 50, 2111 VK3AFW 5x2 144.  
 17/2: 2017 VK3YY 5x4 50, 2018 VK3ATQ  
 5x4 50, 2025 VK3BQS 5x7 50, 2108  
 VK3DEM 5x9 144, 2109 VK3TMP 5x9 144,  
 2113 VK3DEM 5x9 1296, 2118 VK3AFW  
 5x2 144, 2121 VK3TMP 5x1 432  
 18/2: 0822 VK3ZLS 144 5x9, 0836  
 VK3BWT 144 5x9, 0928 VK3TMP 144 5x9,  
 0930 VK3TMP 432 5x7, 0933 VK3TMP  
 1296 5x7, 0952 VK3BRZ 144 5x9, 0955  
 VK3BRZ 432 5x9, 1035 VK3RQ 144 5x7,  
 1057 VK3XQD 144 5x9, 1107 VK3DUQ  
 144 5x9, 1117 VK3KLO 144 5x5, 1121  
 VK3KLO 432 5x2, 2019 VK3RGL 2 m  
 beacon 5x9, 2020 VK2RBC 2 m beacon 5x2,  
 2021 VK5RMG 2 m beacon 5x4, 2022  
 VK3RTG 2 m BEACON 5x1, 2023  
 VK3RMB 70 cm beacon 5x3, 2031  
 VK3ATQ 50 5x2, 2112 VK3AFW 144 5x6,  
 2118 VK3AFW 432 5x3, 2150 VK3TMP  
 144 5x9, 2200 VK3BWT 144 5x9.

David VK3AU reports on a trip to the  
 Blue Mountains in NSW during January and  
 on the way visited VK2TWR, VK1VP,  
 VK2BBF, VK3AJN and VK3UM. His  
 mobile rig was on 144 MHz SSB running 50  
 watts to a M2 halo.

From Lakes Entrance, David worked  
 VK7XR, VK2TWR and VK3BIT at  
 Mallacoota. From Goulburn VK2BBF and  
 VK2ZAB, and from Katoomba in the Blue  
 Mountains, apart from most of the active  
 Sydney stations, he worked VK1BG.

On to Lithgow, from the highest point he  
 worked VK2DVZ at Taree (280 km) and  
 VK1VP. To Bathurst VK2TWR/p (300 km)  
 and from Orange VK2EMA at Tottenham

220 km. At Corowa he worked VK3AJN and  
 VK3CY at Wedderburn. Choosing high  
 elevations helped all contacts. David  
 included a map showing the direction of the  
 contacts, but lack of space prevents me from  
 publishing it. Thanks for the news David.

John VK3ATQ advises that on each  
 week-day morning from 2000 to 2045 (7.00  
 to 7.45 local) schedules on 50.120 MHz now  
 have operators in VK1, 2, 3 and 7 on a regular  
 basis, with a total of 20 different callsigns  
 being heard at various times. VK7 is well  
 represented by Andrew VK7XR, Joe  
 VK7JG, Brenton VK7JB on Tasmania and  
 Bob VK7JR on King Island. Graham  
 VK7ZO in Hobart has expressed interest in  
 joining the group.

Eddie VK1VP is active from Canberra  
 most mornings. Glen VK3YY appears from  
 time to time depending on work  
 commitments. John VK3BQS is the  
 mainstay of the net in Gippsland.

## TV Channels

A message from John VK3KWA said that  
 Andrew VK7XR had advised that Channel  
 5A at Wynyard is finally in the phasing out  
 stage and is now running on reduced power.

Steve Gregory VK3OT reports the only  
 remaining Channel 0 transmitters are as  
 follows.

46.172 Hi power Toowoomba Qld  
 46.240 Hi power Wagga NSW  
 46.240+ Low power Cooma NSW  
 46.240- Low power Narooma NSW  
 46.260+ Med power Tamworth NSW

## VHF-UHF e-mail Reflector for VK

Guy Fletcher VK2BBF asks that the  
 following be made known. The VK e-mail  
 reflector is now running. It is an open list so  
 anyone can subscribe and then post messages  
 out to the group.

To subscribe, send e-mail to [mayordomo@marconi.mpce.mq.edu.au](mailto:mayordomo@marconi.mpce.mq.edu.au) and leave Subject  
 blank, and include in the body of the text  
 subscribe vk-vhf and no other text.

To unsubscribe, do the same with  
 unsubscribe. To obtain help and a list of  
 commands, put help in the body. To find out  
 who is on the list, put who vk-vhf in the body.

To post a message to all subscribers, e-  
 mail vk-vhf@marconi.mpce.mq.edu.au and  
 use the Subject line and Text body as you like.  
 The originator does not appear to receive a  
 copy of the message!

## UK Six Metre Group

At the 16/2/1997 AGM of the UK Six  
 Metre Group (UKSMG), Adam VK3ALM  
 was appointed the UKSMG's VK Country  
 Manager.

Adam reports: "The UKSMG was formed

in 1982 with the primary aim of encouraging  
 an interest in the 50 MHz band by amateurs.  
 The UKSMG maintains a fund to provide  
 beacons in various parts of the world. Over  
 the last few years the group has also supplied  
 many pieces of equipment to encourage and  
 help six metre enthusiasts activate new  
 countries.

"The ambition of the UKSMG, through the  
 medium of its 52 page quarterly magazine  
 "Six News", is to provide the best  
 information available on all aspects of the  
 band, including DX news and reports,  
 beacon lists, propagation reports, six metre  
 equipment reviews, QSL addresses,  
 DXpedition news and technical articles.  
 Articles for publication in "Six News" are  
 welcome.

"By joining the UKSMG for \$AUS40, VK  
 members receive "Six News" by airmail.  
 More than 800 members in 50 countries  
 support the group, and help to maintain the  
 Internet World Wide Web site maintained by  
 Chris G3WOS, the current UKSMG  
 Chairman.

"If you would like further information and  
 a copy of the application form, then send a  
 DL sized stamped self-addressed envelope to:  
 Adam Maurer, VK Country Manager, 1  
 Jeffrey Street, Dandenong North, VIC 3175.  
 E-mail address is [adam@rint.com.au](mailto:adam@rint.com.au)"

## Microwaves

On 14/1/97 at 2330, Bob G3GNR  
 contacted SM6ESG in JO67cc on 10.3681  
 GHz, the distance 1275 km. This is believed  
 to be a new UK 10 GHz tropo record. The UK  
 24 GHz record is now 391 km.

An update from Wal VK6KZ advises, "I  
 have been unsuccessful in bridging the Bight  
 again on 10 GHz despite two expeditions to  
 the south coast. The first trip was from 31/12  
 to 3/1 when contacts were limited to 144 and  
 432 MHz to Adelaide, Mt Gambier and  
 Melbourne, with nothing heard on 10 GHz in  
 tests with Trevor VK5NC and David VK5KK.  
 The most distant DX was Andrew VK3KAQ/p  
 near Ross Hill east of Melbourne.

"The second trip was between 31/1 and  
 4/2 when I had a number of long distance  
 contacts across the Bight on 144, 432 and  
 1296 MHz. Attempts were unsuccessful with  
 David VK5KK, Trevor VK5NC, and Russell  
 VK3ZQB on 5.7 and 10 GHz, and on 10 GHz  
 with Roger VK5NY.

"Clearly the MUF didn't rise high enough  
 for 5.7 and 10 GHz. I also looked for the  
 Adelaide 2.4 GHz beacon without success.

"My view is that the high pressure cells at  
 the time locked a high enough central  
 pressure and/or were too far south in latitude  
 with the path being tangential rather than  
 across the centre of the high as with the  
 contact on 10 GHz in 1995

"Highlight of the second trip was being able to help Wally VK6WG get his 10 GHz gear fully operational. As a consequence, I was able to work two new grid squares from Torbay. The first was by turning an impossible 25 km path from Wally's QTH to mine at Torbay into one of 86 km. Wally lives on the slopes of Mt Melville which shaded the direct signals. We both pointed at the Porongorup Ranges to the north of Albany and had a good SSB path. Later, Wally moved to a new grid square near the Albany airport with paralytic signals over a direct line-of-sight path of about 35 km.

"The main interest has been 5.7 GHz with contacts between Neil VK6BHT/p Geraldton and Alan VK6ZWZ/p taking the distance record of 501 km from Alan VK3XPD/p Mt Dandenong and Trevor VK5NC/p Robe, to 544 km when Alan drove to Busselton the day after I worked Neil over 379 km from Fremantle.

"On 16/2 at 0930 UTC, Neil Sandford VK6BHT/p at Port Gregory, about 60 km north of his QTH, and Alan Woods VK6ZWZ/p at Busselton, about 230 km by road from his QTH, worked each other on SSB over the 614 km path. Over the half-hour contact signals showed QSB but peaked at 5x9. This will be a hard path to beat until the Bight is bridged!

"The likelihood of a path was indicated by good reception in Perth of the WA VHF Group 1296 MHz beacon at Busselton and the existence of a trough up and down the west coast."

## Overseas

Geoff GJ4ICD reports, "Apart from the VK5LP entry for a contact to ZL2UJG at 3332 km, on 6/1 VK6APZ PF06 worked ZL3TC RE66 at a distance of 4850 km. So it looks like he/she win the Southern Hemisphere 50 MHz DX Challenge Trophy."

"Also January 20 - what a day to remember for propagation in the winter! Europe had noted all the openings in the US and at last it was our turn. The Xray flux showed high levels on 19/1 and 20/1 and, as mentioned before, this may be one of the causes of Es. At 1800 the reported MUF in Germany was 88 MHz, with 50 MHz sounding like 20 metres!

"Most countries in Europe caught the openings including HB0LL, I logged LA, SM, OH, SP, DL, OK, OE, HB9, HB0, GM, EA, CT, I, and PA0; some very short skip was noticed with stations in Germany being S9+."

Ted G4UPS made the following comments for another view regarding the above mentioned Es opening on 20 January "A date for the record books. Weather pattern over the UK and parts of Europe was high

pressure, but quite mild here in the SW of UK. First indications of an opening came with the SK5/LA7 beacons on 28 MHz, then the SK3/SIX/b on six metres at 0951 and ES05IX/b at 0956.

"First amateur signals SM1BSA 449 at 0959 working DJ2RE, followed by a big opening to SM/OZ/DL/OH/ES and OH1SIX/b. Band closed at 1340 to re-open at 1608 with Russian in-band-TV. At 1623 SR6SIX/b plus quite a few SP stations, then many SM/OZ/YL/SP/ES/DL/OE/SS/HB9/HB0/YU and EH. After 1830 most activity came from Italy until fading out at 1915.

"It is not common to have such a widespread intense opening in January. Since 1/1 my country count is 18 with 58 different grid squares, the highest I can remember for January."

Emil W3EP in March QST's The World above 50 MHz reports on the annual Danish Microwave Activity Week, June 15-21, 1996, which attracted 27 operators from four countries, including guests from Germany, France and the Netherlands. The typical Danish spring weather did not help propagation, yet some impressive contacts were made. Activity started on 10 GHz and went up from there! Steen Gruby, OZ9ZI, provided these highlights: "Participants made several contacts on 10 GHz over 300 km, including OZ6TX to LA/DCD8DA at 385 km. The best on 24 and 47 GHz were also made with Norway on one end of the path. SM/OZ1JLA (with OZ1FPN) found LA/DCD8DA (with OZ9ZI) over a 253 km path on 24 GHz. OZ1JLA was running just 60

mW and a 48 cm dish; DCD8DA had 265 mW. On 47 GHz, a new Danish DX record was set with the 162 km contact between OZ/DB6NT and LA/OZ9ZI (with DCD8DA). Incredibly, OZ9ZI was generating just 100 microwatts into a 25 cm dish! On 76 GHz, the longest contact was 83 km, between OZ1UM and OZ/F10IH. Both stations ran less than 3 mW into 25 cm dishes."

The above is included for VK microwave enthusiasts to indicate what they are up against as they move higher in frequency!

David VK5KK reports that the microwave (1296 and above) VK5 beacons are having directional antennas progressively added to achieve 100 watts ERP to the SE and/or west direction to make them more useful as DX beacons over 500 km. The first will be the 1296 MHz beacon with two 15 element DL6WUs (13 dBd gain), one at 265 degrees, the other at 140 degrees. At the moment the 1296 MHz beacon has 5 dB gain to the west.

## Closure

Closing with two thoughts for the month:

1. The difference between a prejudice and a conviction is that you can explain a conviction without getting mad, and

2. Don't meet trouble halfway. It is quite capable of making the entire journey.

73 from The Voice by the Lake

\*PO Box 169, Meningie SA 5264

Fax 08353 1042

Packet VK5LP@VK5WI#ADL.RSA.AUS OC

E-mail vk5lp@ozemail.com.au

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## Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:

K B (Kenneth)	BROWN	VK2AJJ
J F (John)	SMITH	VK2LSH
N H (Norm)	TOWNLEY	VK3ANT
C D (Charles)	SELL	VK6NSL

### John "Swampy" Smith VK2LSH

1965 - 1997

Our friend John, or "Swampy" as many knew him, died on Tuesday, 25 February 1997 at 8.30 am. At this time we lost a radio colleague, a lovely bloke, and most importantly, a dear friend. It came as a complete shock to all who knew him.

John could be described as one of the most dedicated DXers in VK. On 15 m and 10 m, John could be heard fading away with the QSB after a hard evening of chasing

Europeans. He slept in the shack, giving him the best chance of hearing it come back. He was the first one on and the last one off. There were many times when I heard John calling "nothing" with his well known CQ call, until "nothing" turned into "something".

For any of you out there who dealt with John with regard to Kenwood radios and HF antenna equipment, you were all wrong. "Swampy" was always right.

We will miss "Swampy" for the laughs, the overdriven modulation, and the "off frequency transmissions". This week, the radio is much quieter and we have lost a dear friend.

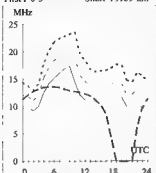
Ave Swampy.

Aaron VK2ON ex VK2NAL, Steve VK2MSD, and many CBers and friends in Hunter Region NSW

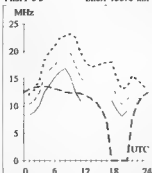
ar

**Adelaide-Amsterdam 313**

First F 0-5 Short 15909 km

**Brisbane-Berlin 321**

First F 0-5 Short 15678 km

**HF Predictions**

Evan Jarman VK3ANI

**T Index: 15**

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits. This also indicates a possibility of communication (percentage).

The frequencies, identified in the legend, are -

Upper Decile (F-layer, 10%)

F-layer Maximum Usable Frequency (50%)

E-layer Maximum Usable Frequency

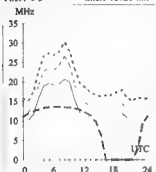
Optimum Working Frequency (F-layer, 90%)

Absorption Limiting Frequency

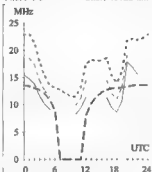
The predictions were made with the Ionospheric Prediction Service program, ASAPS V3.2. The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

**Adelaide-Ankara 299**

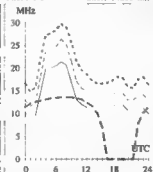
First F 0-5 Short 13628 km

**Brisbane-Boston 56**

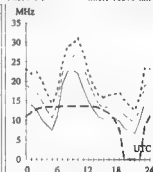
First F 0-5 Short 15722 km

**Canberra-Cairo 283**

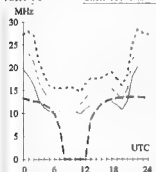
First F 0-5 Short 14265 km

**Darwin-Dakar 278**

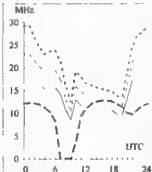
First F 0-5 Short 16578 km

**Adelaide-Atlanta 79**

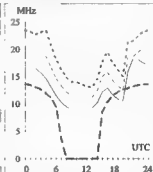
First F 0-5 Short 16091 km

**Brisbane-Brasilia 152**

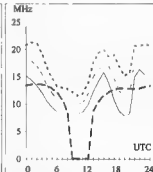
First F 0-5 Short 14700 km

**Canberra-Calgary 46**

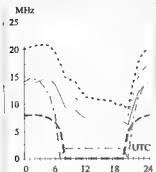
First F 0-5 Short 13409 km

**Darwin-Dayton 42**

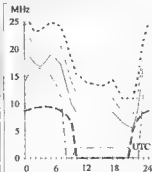
First F 0-5 Short 15430 km

**Adelaide-Auckland 104**

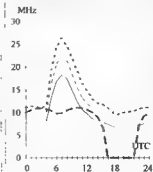
Second 2F13-15 2E2 Short 3240 km

**Brisbane-Brunei 305**

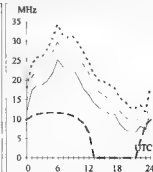
Second 3F10-15 3E1 Short 5441 km

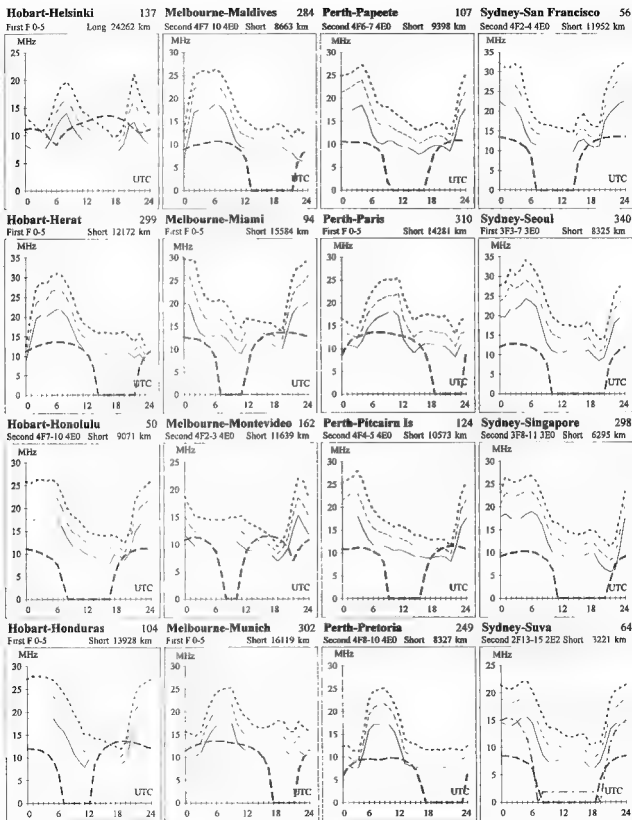
**Canberra-Cape Town 219**

Second 4F4-5 4E0 Short 10778 km

**Darwin-Delhi 309**

Second 3F5-11 3E0 Short 7347 km





# HAMADS

- Hamads may be submitted on the form on the reverse side of the *Amateur Radio* address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio* address flysheet.
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- WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:

Postal: 3 Tamar Court, Mentone VIC 3194

Fax: (03) 9584 8928

E-mail: vk3br@c031.aone.net.au

## TRADE ADS

• **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth; Haven Electronics, Nowra; and WIA Equipment Supplies, Adelaide.

• **WEATHER FAX programs for IBM XT/ATs** \*\*\* "RADFAX2" \$35.00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3 6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3 1/2" disks (state which) plus documentation, add \$3.00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

• **HAM LOG v3.1** - Acclaimed internationally as the best IBM logging

program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur. "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA. "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (+ \$5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available Robin Gandevia VK2VN 02 369 2008 BH fax 02 369 3069.

Internet address rhg@ozemail.com.au.

• **Personalised QSL Cards.** 100 for \$17.50, white or colours. Examples, order forms, send 45 cent stamp to Henry's Publishing, PO Box 6603, Mackay MC, QLD 4741.

## FOR SALE ACT

• **Yaesu FT200**, s/n 320054, and PSU, not working but fixable. **Hallcrafters S58** receiver, 538 kHz to 34 MHz, s/n 183784. **Heathkit HW32**, s/n 5426780R, SSB txcvr and PSU. Manual for each. Claude VK1CS, QTHR, 06 241 2686.

## FOR SALE NSW

• **Icom IC-735 HF** all band s/state txcvr, 100 W, gen coverage rcvr, all mode, manual, original carton plus hand mike, as new, \$1200

ONO Werner Wolf multiband tuned vertical antenna, 8 m, VGC, \$200. ONO. MFJ Versa HF Tuner II Model MFJ949 with X-needle, 50 ohm dummy load, switched inductor, 300 W, 160-10 m, as new, original packing, \$200. ONO Icom SM-8 desk mike with optional cord, as new, \$100. ONO Homebrew 13.8 V 20 A regulated power supply, fully metered, O/V and O/C protection, inbuilt forced cooling, peaks 25 amp, \$90. ONO. Transmitting equipment sold to licensed amateurs only John VK2GMR, 066 461 460.

• **Kenwood TS-520S HF** txcvr, SP-520S spkr, mic, manual, mint condn, cartons, \$390. **DGS Digital Display**, manual, mint condn, \$125. Geoff VK2FY, QTHR, 02 9600 7352.

• **Kenwood TS-711 2 m** all mode txcvr, s/n 8050176, 25 W, voice synthesiser, inbuilt PSU, excellent unit, VGC in original carton, complete, \$1200. **Kenwood PS-50 20 A** PSU, s/n 8010444, VGC, original carton, complete, \$300. Peter VK2APP, QTHR, 063 826 086.

• **Kenwood TS-811B 70 cm** all mode txcvr, as new condn, \$1100. **Kenwood TS-700SP 2 m** all mode txcvr, digital read-out, built in PSU, as new condn, \$650. A Walsh VK2TBW, 048 612 092 fax 048 611 536 anytime.

• **PK232 TNC**, all mode, VGC, manuals, leads, \$350. ONO. **Elite Line TX5500** amplifier, VGC, 180 W PEP, \$250. ONO. **Laptop computer**, dual 3 1/2 inch drives, great portable packet station, \$150. ONO. Paul VK2HW, 049 335 995.

• **US and International Call Books**, 1996, in mint condn, \$80 incl postage. Steve VK2PS, QTHR, 02 9654 1809.

## FOR SALE VIC

• **Yaesu FP-757HD PSU**, 20 A, EC, \$320. Kevin VK3CKL, QTHR, 03 9792 9503.

• **VK3EOH Deceased Estate**, **Kenwood TS-440S**, HF txcvr with ATU, **Kenwood PS-50 PSU**, **Kenwood TR-751A** all mode txcvr, **Kenwood SW100**, EP200 SWR and power meter, extras and antenna, \$2000 Mrs I Decker, 03 9749 9878.

• **Kenwood TS-520S HF** txcvr, s/n 811317, circuit and operating manual, overhauled including new driver and finals, \$300 Lindsay VK3IQ, 03 5672 2563

• **Kenwood TS-820S HF** txcvr, s/n 740961, digital frequency display, excellent condn, recently checked by Kenwood in Sydney, original carton, manual, mic, extn spkr; also matching cabinet DSIA DC converter for mobile operation (unused), in carton \$650 the lot. Gordon VK3ABI, QTHR, 03 5289 1812.

• **G2DAF linear amp**, home brew with two



813s, new valves, good quality parts and separate h/brew PSU, requires some work to complete, \$250 ONO. Castlemaine area. Bob VK3PT, 03 5439 6314.

• **Kenwood MA-5**, HF mobile 5 band antenna, \$180. **Kenwood AT-130** antenna tuner, as new, \$150. **Kenwood TR-7850** 2 m FM txcvr, 50 watts, \$350. **Kenwood TS-120S** HF txcvr, as new, \$470. All in excellent condn, used only as stand-by equipment. **ATN 7 el log periodic**, \$580 ONO. VK3CYL, QTHR, 03 9801 2792.

• **Toshiba T3208SX 386 laptop computer**, mono screen, 40 Mb HDD, 1.44 FDD, usual comm and printer ports, carry case, plus a new packet modem and all appropriate software, a bargain at \$350 ONO. **Compaq 286 portable computer** in carry case, mono plasma screen, 40 Mb HDD, 1.44 FDD, plus a new packet modem and all appropriate software, \$250 ONO. Harold VK3AFQ, QTHR, 03 9596 2414 anytime.

• **TS-430S**, FM board, wide AM filter, mobile bracket, \$920. **FT-101ZD Mk 2**, \$650. **FC-901** tuner, \$250. **FV-101DM** digital ext VFO, \$175. **Philips 926 99** ch 70 cm FM, \$220. **Nicads** size D 1.2 V/4 Ah, \$6 each. **FM900** selcall, \$40. **Antennas BNC/TNC**, suit hand helds, new, VHF/UHF \$15 ea. **Marconi MI2955**, \$7000. **RT80**, suit 2 m packet, \$45. **Epson LX-800**, \$100. **Amstrad 286 PC**, \$90. **Acoustic hood**, \$50. Lee VK3GK, 03 9544 7368, 015 810 101.

• **Kenwood MC60A** base mike, \$80. **Revox ant switch** (DSE D5208), \$35. Both as new condn. **Yaesu FC-102 ATU**, fair condn, \$100. Damien VK3RX, 03 5427 3121.

#### FOR SALE QLD

• **Electronics books**, 1928 to present, 45 cent stamp for catalogue. Some parts also. P Hadgraft VK4APD, QTHR, 07 3397 3751.

• **DC RF interference filter**, 2 x 100 amps @ 24 VDC, suit wall mounting on shielded room, \$190. **Mains RF interference filter**, 2 x 20 amps @ 240 VAC, suit wall mounting on shielded room, \$190. **Notch filter**, K&L Dual, tunable 50 to 75 MHz, two separate calibrated vernier dials, \$210. Gary VK4AR, QTHR, 07 3353 1695.

#### FOR SALE SA

• **Icom IC-W21A** 2 m/70 cm dual band handheld, with Rx 50 to 1000 MHz, AC charger, cigarette lighter adaptor, antenna, belt clip, as new in box, s/n 01642, immaculate condn, \$450. John VK5KBE, QTHR, 014 000 016.

• **Akai GX4000D** stereo tape deck, as new, 4 track, 2 mic inputs, glass crystal FF heads, 2 speed rec, 2140 mins, freq response 30 to 24,000 Hz, many exclusive features, blank tapes available also with top band music, ideal dancing, monitored with 2 VU meters, breath-taking fidelity, \$475. Bargain, will sell for \$190. A E Shepard VK5DC, QTHR, 08 431 4194

#### FOR SALE WA

• Shack clearance due to ill health, VK6AAS needs to sell **Yaesu FT101ZD** with desk mic; **FC-901** antenna coupler; 40 ft winch-up mast; rotator and controller; 5 band wire dipole. Contact Peter VK6APS, QTHR, 09 652 1326.

#### WANTED NSW

• **Crystal microphone or crystal microphone insert(s)**, VK2BJU, QTHR, 02 9673 4305.

• **Icom IC-735** with operating manual, must be in good condn. Also, **service manual for Kenwood TS-900**, all costs gladly refunded. Stan VK2BRZ, QTHR, 044 417 061.

• **Automorse, McDonald Pendographe and Australian Buzzer semi-autos** required; also any service manuals for the above keys. Photocopies OK. Pay top dollar for good condn keys. Steve VK2SPS, 02 9999 2933 after 6.00 pm.

• **Tono 7000E Morse/RTTY computer**. Scotty VK2KE, 060 218 897.

#### WANTED VIC

• **Band-change switch (ceramic)** for **Yaesu FL-2500** linear, bank B rear, or complete. Kevin VK3CKL, QTHR, 03 9792 9503.

• **Copy of circuit or handbook for AWA**

receiver type CR-6B. Will pay all costs. Morris VK3DOC, 03 9824 8988.

• **Valves 8122**. Stan VK3SE, 03 5332 2340.

#### WANTED WA

• **IC-970, IC-781**, only good condn. Walter VK6BCP, QTHR, 09 341 2054 or fax 09 341 1230.

• **Icom IC2KL linear**, faulty unit also considered. Phil VK6APH, QTHR, 09 245 2973.

#### WANTED TAS

• **Attenuators HP models 355C, 355D**. Require several units of each, any condn. Trevor Briggs VK7TB, 03 6398 2118 after 6.00 pm, or mail info to 9 Norfolk St, Perth, TAS 7300.

• **Patrolman 50 and Selena B206**: GE Super Radio 1: GE Super Radio 2. Martin L70067, QTHR, 03 6331 8705.

#### MISCELLANEOUS

• **THE WLA QSL Collection** (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel 03 9728 5350.

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## VK QSL BUREAUX

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600 CANBERRA ACT 2601
VK2	PO Box 73 TERALBA NSW 2284
VK3	Inwards Box 757G, GPO MELBOURNE VIC 3001
	Outwards 40G Victory Blvd ASHBURTON VIC 3147
VK4	GPO Box 638 BRISBANE QLD 4001
VK5	PO Box 10092 Gouger St ADELAIDE SA 5001
VK6	GPO Box F319 PERTH WA 6001
VK7	GPO Box 371D HOBART TAS 7001
VK8	C/o H G Andersson VK8HA
	Box 619 HUMPTY DOO NT 0836
VK9/VK0	C/o Neil Penfold VK6NE
	2 Moss Court KINGSLEY WA 6026

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**Photocopies of any article published in a back issue of Amateur Radio are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears)**

# WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division Address	Officers	Weekly News Broadcasts	1997 Fees
<b>VK1</b> ACT Division GPO Box 600 Canberra ACT 2601	President Hugh Blomings Secretary John Woolner Treasurer Las Davey	VK1YYZ VK1ET VK1LD 3,570 MHz LSB, 146,950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet <a href="mailto:aus.radio.amateur.misc">aus.radio.amateur.misc</a> newsgroup, and on the VK1 Home Page <a href="http://email.unla.gov.au/~crankin/wiaact.html">http://email.unla.gov.au/~crankin/wiaact.html</a>	(F) \$72.00 (G) (\$ \$58.00 (X) \$44.00
<b>VK2</b> NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone 02 9689 2417 FreeCall 1800 817 844 Fax 02 9633 1525	President Peter Jensen Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00 Sat 1000-1300 Mon 1900-2100)	VK2AQJ VK2EFY VK2KUR From VK2W 1,845, 3,595, 7,146*, 10,125, 24,950, 28,320, 29,120, 52,120, 52,525, 144,150, 147,000, 438,525, 1281.750 (* morning only) with relays to some of 14,160, 18,120, 21,170, 584,750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.583 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup <a href="mailto:aus.radio.amateur.misc">aus.radio.amateur.misc</a> , and on packet radio.	(F) \$66.75 (G) (\$ \$53.40 (X) \$38.75
<b>VK3</b> Victorian Division 400 Victory Boulevard Ashburton Vic 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Jim Linton Secretary Barry Wilson Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3KV VK3NC VK3BW broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies 1,940 AM, 3,615 LSB, 7,085 LSB, and FM(R)s 146,700 Mt Dandenong, 147,250 Mt Macedon, 147,225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH and VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$75.00 (G) (\$ \$61.00 (X) \$47.00
<b>VK4</b> Queensland Division GPO Box 838 Brisbane QLD 4001 Phone 074 96 4714	President Geoff Sanders Secretary John Stevens Treasurer John Prescott e-mail address: <a href="mailto:wiaq@tmbris.mhs.qz.au">wiaq@tmbris.mhs.qz.au</a>	VK4KEL VK4AFS VK4WXC 1,825 MHz SSB, 3,605 MHz SSB, 7,118 MHz SSB, 14,342 MHz SSB, 28,400 MHz SSB, 29,220 MHz FM, 52,525 MHz FM, 146,700 MHz FM, 147,000 MHz FM, 438,525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3,605 MHz SSB & 147,000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ @ VK4NET.	(F) \$74.00 (G) (\$ \$60.00 (X) \$46.00
<b>VK5</b> South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Peter Watts Secretary Maurice Hooper Treasurer Charles McEachern Web: <a href="http://www.vk5wa.ampr.org/">http://www.vk5wa.ampr.org/</a>	VK5ZFW VK5EA VK5DK 1827 MHz AM, 3,550 MHz LSB, 7,095 AM, 14,175 USB, 28,470 USB, 53,100 AM, 147,000 FM Adelaide, 146,700 Mt North, 146,800 Mt Mildura, 146,825 FM Barossa Valley, 146,900 FM South East, 146,925 FM Central North, 147,825 FM Gawler, 438,425 FM Barossa Valley, 438,475 FM Adelaide North, ATV Ch 35 578,250 Adelaide, (NT) 3,555 USB, 7,065 USB, 10,125 USB, 146,700 FM, 0900 hrs Sunday, 3,585 MHz and 146,675 MHz Adelaide, 1930 hrs Monday.	(F) \$75.00 (G) (\$ \$61.00 (X) \$47.00
<b>VK6</b> West Australian Division PO Box 10 West Perth WA 6872 Phone 09 351 8673	President Cliff Bastin Secretary Christine Bastin Treasurer Bruce Holland-Thomas	VK6LZ VK6ZLZ VK6OD 146,700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1,825, 3,560, 7,075, 14,116, 14,175, 21,185, 29,680 FM, 50,150 and 438,525 MHz. Country relays 3,582, 147,350(R) Dussellon and 146,900(R) Mt William (Bunbury). Broadcast repeated on 146,700 at 1900 hrs Sunday, relayed on 1,865, 3,563 and 438,525 MHz; country relays on 146,350 and 146,900 MHz.	(F) \$62.00 (G) (\$ \$50.00 (X) \$34.00
<b>VK7</b> Tasmanian Division 5 Helen Street Newstead TAS 7250 Phone 03 634 42324	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 146,700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147,000 (VK7RAA), 146,725 (VK7RNE), 146,625 (VK7RMD), 3,570, 7,090, 14,130, 52,100, 144,150 (Hobart) Repeated Tues 3,590 at 1930 hrs.	(F) \$74.00 (G) (\$ \$60.00 (X) \$46.00
<b>VK8</b> (Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		<b>Membership Grades</b> Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

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